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I-ASTM Jet A Fuel and Dry Air

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Summary

A series of computations has been made to produce the equilibrium temperature and gas composition for ASTM Jet A fuel and dry air. The computed tables and figures provide combustion gas property data for pressures from 0.5 to 50 atmospheres and equivalence ratios from 0 to 2.0. Only sample tables and figures are provided in this report. The complete set of tables and figures is provided on four microfiche films supplied with this report.

Introduction

A series of computations was made to determine the equilibrium properties of combustion gas products resulting from the combustion of ASTM Jet A fuel and dry air. During combustion research it is important that the properties of combustion gases be readily available and in a form that is convenient and useful to the designer and researcher.

In the past, the combustion gas properties of gas turbine fuels as well as a variety of other hydrocarbon fuels have been computed and reported (refs. 1 to 5). These reports have been used extensively at NASA and throughout industry. The computational schemes that have been developed over the years by Huff, Gordon, Zeleznik, and McBride (refs. 6 to 8) form the basis for these reports and have been used to compute combustion gas properties for a wide spectrum of fuel and oxidant combinations. Often, however, the tables and charts have not been prepared for specific fuels. For example, the data of reference 5 are in a tabular form for hydorgencarbon (H/C) ratios of 1.7, 2.0, and 2.1 for a range of assigned pressures, temperatures, and fuel-air mixtures. The data in this report also include combustion thermodynamic properties for a range of inlet-air temperatures, but the data herein are plotted to facilitate their use. The resulting figures have proven to be extremely useful in combustion research, and copies of such figures have been prepared for a wide variety of fuels. Because of the numerous requests for these figures as well as the interest in high pressure combustion research (ref. 9), we have decided to prepare a new series of figures and tables and extend the applicable range of the parameters covered.

This report presents tables and figures for the combustion gas properties of ASTM Jet A fuel and dry air for pressures from 0.5 to 50 atmospheres, inlet-air temperatures from 250 to 1150 K, and equivalence ratios from 0 to 2. Only sample tables and figures are provided in this report. The complete set of tables and figures is provided on the four microfiche films supplied with this report.

Procedure

The computations for this report were performed using the NASA Lewis chemical equilibrium computer program documented in reference 8 by Gordon and McBride. The computational method uses a free energy minimization method assuming all gases are ideal and interaction among phases can be neglected. The possible products of reaction are Ar, C (graphite), CH₄, CO, CO₂, H, HO₂, H₂, H₂O(l), H₂O, N H₃, N, NO, NO₂, N₂, O, OH, and O₂. These data, the atomic weights, and physical constants are the same as those used in reference 5.

The computations presented in this report were made for ASTM Jet A and dry air. ASTM Jet A is a kerosene-type commercial grade aviation fuel. The molecular hydrogen-carbon ratio of 1.9067 and lower heat of combustion of 18 600 Btu/lb used in the computations were average values obtained from the analysis of several fuel samples.

Charts of various useful combustion gas properties were also generated and plotted using computer programs. In the past, these figures had to be generated by crossplotting values from the tables. It was possible to avoid the manual crossplotting of tabular data by having the computer calculate the desired values for a given set of input parameters. For example, the plots in figure 1 are of equilibrium combustion temperature generated over a range of inlet-air temperatures, pressures, and fuel-air ratios. This was done by selecting the final equilibrium combustion temperature, assigning a pressure and fuelair ratio, and then computing, in an iterative manner, the required value of inlet-air temperature. These computed values were then stored as a data set and figures were produced by the computer. In regions where the results became highly nonlinear, additional computations were

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performed in order to present the computed results with the same level of accuracy. A careful examination of these regions shows that the curve fit consists of very short linear segments. In a similar fashion, an appropriate iterative procedure was used to produce the other combustion gas property figures.

Results

The computation procedure was used to produce the tables and the figures that are presented with this report. The major portion of the information is included on the four microfiche films enclosed at the back of this report. Only sample tables and figures are shown and discussed within the report.

Tabular Listing

The computations are listed in tabular form on the microfiche. Table I(a) is a copy of a typical listing of the combustion gas properties and species. Included in each table are the following:

- (1) The case number and description of reactants, the oxidant-fuel weight ratio (O/F), the fuel-air weight ratio (F/A), the percent fuel, and the equivalence ratio, ϕ , which is the ratio of the F/A value to the stoichiometric F/A value, are included. The variation or change in case number has been used to specify a different inlet-air temperature; e.g., case 1 (shown) is 250 K; case 3 is 600 K; case 7 is 1150 K.
 - (2) Combustion gas properties:
 - (a) Equilibrium temperature, T, K and F
 - (b) Density, ρ , g/cc
 - (c) Molecular weight, M
 - (d) Specific heat (at constant pressure), C_p , cal/g-K
 - (e) Isentropic exponent, $\gamma(s)$ (as defined in ref. 8)
 - (f) Sonic velocity, m/sec

(3) Mole fractions of the various combustion gas species are given when the concentration is equal to or greater than 5 parts per million by volume (ppm).

The listing at the beginning of table I(a) is the input information on the fuel and oxidant. Listed are, from left to right, the fuel and oxidant atomic formulas, the weight fraction of each component, the heats of formation, the inlet temperature (fuel was introduced at 298 K and air for case 1 is 250 K), and the density of the fuel in the last column. This is a typical input listing used by Gordon in reference 5. Table I(a) lists the gas properties and species concentrations for 1820 different combinations of parametric conditions. The parameters and values used are as follows:

- (1) Combustion pressure, atm: 0.5, 1, 1.5, 2, 3, 4, 6, 10, 15, 20, 30, 40, 50
- (2) Inlet air temperature, K: 250, 400, 600, 800, 1000, 1100, 1150 (case numbers 1 through 7, respectively)
- (3) Equivalence ratio, φ: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.85, 0.9, 0.95, 1.0, 1.05, 1.10, 1.15, 1.2, 1.4, 1.6, 1.8, 2.0

Information contained in table I(a) has been used to generate figures 1, 2, 3, and 6.

Table I(b) lists the combustion gas properties for different combinations of parametric conditions. These tables were computed by assigning pressure, temperature, and fuel-air ratio and then performing iterative calculations to obtain equilibrium composition and properties. The parameters used are the following:

- (1) Pressure, atm: 0.5 to 50 (in steps as indicated previously)
- (2) Temperature, K: 300 to 2800 in 100 K increments
- (3) Fuel-air ratio (weight): 0.000 to 0.100 in increments of 0.010

Information contained in table I(b) has been used to generate figures 4 and 5.

Graphical Presentations

Some typical figures have been included to illustrate the nature of the figures available on the included microfiche. Table II is a listing of the parameter variations and the range of computed gas properties for each of the six figures presented herein. Figure 1 gives computed values showing the effect of varying the inletair temperature, fuel-air ratio, and combustion pressure on equilibrium gas temperature. This figure covers pressures from 4 to 50 atmospheres. Figures at lower pressures, 0.5 to 4 atmospheres, are available on the microfiche.

Figure 2 is similar to figure 1 except that the equilibrium temperature is plotted as a function of fuelair ratio for various values of inlet-air temperature at a single specified level of combustion pressure; in this case, 1 atmosphere.

Figure 3 is similar to figure 2 except that temperature rise values are plotted versus fuel-air ratio for a range of inlet-air temperatures, again at the 1-atmosphere pressure level. Curves at other pressure levels are to be found on the microfiche.

Figure 4 presents the variation in the isentropic exponent γ (ref. 8) as a function of the mixture temperature for various values of fuel-air ratio at single values of combustion pressure; again, at the 1-atmosphere pressure level. For the purposes of this report, mixture temperature and equilibrium temperature may be used interchangeably.

Figure 5 presents the variation in mixture molecular weight as a function of mixture temperature for various fuel-air ratios at specified levels of combustion pressure.

Figure 6 presents the relationship between the computed equilibrium temperature as a function of the initial temperature for various values of the equivalence ratio (φ) at specified pressure levels.

Summary of Results

Advanced computational schemes have been used to produce a series of tables and figures specifically for the combustion properties of ASTM Jet A fuel and dry air. Complete tabular listings and graphical representations are provided on the four enclosed microfiche.

Lewis Research Center National Aeronautics and Space Administration Cleveland, Ohio

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TABLE I. - EXAMPLE OF MICROFICHE TABULAR LISTING OF COMPUTED GAS THERMODYNAMIC COMBUSTION PROPERTIES AND SPECIES CONCENTRATION

(a)	Assigned	pressure,	tuel-air	ratio,	and	initial	air	temperatures	

C 1.000000 H 1.906699 AR 1.000000 0.000000 C 1.000000 0 2.000000 N 2.000000 0.000000 0 2.000000 0.000000	0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	0.000000 0.01285800 0.000000 0.00045600 0.000000 0.75525296	-5059.80 L 298.150 0.00 G 250.001 0.00 G 250.001 0.00 G 250.001 0.00 G 250.001	F 0.80700 C 0.00000 O 0.00000 C 0.00000 O 0.00000
CASE= 1 0/F=14 P, ATM 0.5000 T, DEG K 537.4 T, DEG F 507.6 RHO, G/CC 3.2845-4 6, MOL WT 28.966 CP, CAL/(G)(K) 0.2501 GAMMA (S) 1.3780 SON VEL,M/SEC 461.0	46.5400 F/A= 0.00682 1.0000 1.5000 2.0000 537.4 537.4 537.4 507.6 507.6 507.6 5.5690-4 9.8536-4 1.3138-3 28.966 28.966 28.966 0.2501 0.2501 0.2501 1.3780 1.3780 1.3780 461.0 461.0 461.0	3.0000 4.0000 6.0000 537.4 537.4 537.4 5507.6 507.6 507.6 507.6 51.9707-3 2.6276-3 3.9414-3 528.966 28.966 28.966 0.2501 0.2501 0.2501 1.3780 1.3780 1.3780	PHI= 0.1000 10.000 15.000 20.0 537.4 537.4 53.4 507.6 507.6 50.6 6.5691-3 9.8536-3 1.3138 28.966 28.966 28.96 0.2501 0.2501 0.20 1.3780 1.3780 1.3780 1.3780 461.0 461.0	1.4 537.4 537.4 537.4 1.6 507.6 507.6 507.6 1.7 707.2 2.6276.2 3.2845.2 1.6 28.966 28.966 28.966 1.0 2.501 0.2501 0.2501 1.3780 1.3780 1.3780
CO2	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565 0.18727 0.18727 0.18727	0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565	0.00926 0.00926 0.009 0.01439 0.01439 0.014 0.01343 0.01343 0.01 0.77565 0.77565 0.775 0.18727 0.18727 0.18	39
P, ATM 0.5000 T, DEG K 801.9 T, DEG F 983.7	73.2700 F/A= 0.01365 1.0000 1.5000 2.0000 801.9 801.9 801.9 983.7 983.7 983.7 4.4023-4 6.6034-4 8.8046-4 28.968 28.968 28.968 0.2681 0.2681 0.2681 1.3439 1.3439 1.3439 556.2 556.2	3.0000 4.0000 6.0000 801.9 801.9 801.9 983.7 983.7 983.7 1.3207-3 1.7609-3 2.6414-3 23.968 28.968 28.968 0.2681 0.2681 0.2681 1.3439 1.3439 1.3439	PHI= 0.2000 10.000 15.000 20.0 801.9 801.9 80.9 983.7 983.7 98. 4.4023-3 6.6034-3 8.804 28.968 28.968 28.0 0.2681 0.26881 0.26881 0.26881 0.26881 0.2	.9 801.9 801.9 801.9 .7 983.7 983.7 983.7 .3 1.3207-2 1.7609-2 2.2011-2 68 28.968 28.968 28.968 81 0.2681 0.2681 0.2681 39 1.3439 1.3439 1.3439
C02 0.02829 H20 0.02669 N2 0.77047	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.77047 0.77047 0.16535 0.16535 0.16535	0 0.02829 0.02829 0.02829 0 0.02669 0.02669 0.02669 7 0.77047 0.77047 0.77047	0.00920 0.00920 0.00 0.02329 0.02829 0.02 0.02669 0.02669 0.02 0.77047 0.77047 0.771 0.16535 0.16535 0.16	29 0.02829 0.02829 0.62829 69 0.02669 0.02669 0.02669 47 0.77047 0.77047 0.77047

TABLE I. - CONCLUDED.

(b) Assigned temperature, pressure, and fuel-air ratio

CASE= 0 P, ATM T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F=1 0.5000 1500.0 2240.3 1.1767-4 28.967 0.2996 1.2971 747.3	00.0000 0.5000 1400.0 2060.3 1.2607-4 28.967 0.2950 1.3030 723.6	F/A= 0. 0.5000 1300.0 1880.3 1.3577-4 28.967 0.2907 1.3089 698.9	01000 0.5000 1200.0 1700.3 1.4709-4 28.964 1.3151 673.0	PERCENT F 0.5000 1100.0 1520.3 1.6046-4 28.967 0.2820 1.3215 645.9	FUEL = 0 0.5000 1000.0 1340.3 1.7651-4 28.967 0.2774 1.3285 617.5	.9901 P 0.5000 900.0 1160.3 1.9612-4 28.967 0.2723 1.3369 587.7	PHI= 0.146 0.5000 800.0 980.3 2.2063-4 28.967 0.2666 1.3466 556.1	5 0.5000 700.0 800.3 2.5215-4 28.967 0.2606 1.3574 522.2	0.5000 600.0 620.3 2.9418-4 28.967 0.2546 1.3688 485.5	0.5000 500.0 440.3 3.5301-4 28.967 0.2492 1.3799 445.0	0.5000 400.0 260.3 4.4126-4 28.967 0.2448 1.3893 399.4	0.5000 300.0 80.3 5.8835-4 28.967 0.2422 1.3952 346.6
MOLE FRACTIONS AR CO2 H20 N0 N2 OH	0.00923 0.02088 0.01960 0.00120 0.77262 0.00004 0.17642	0.00923 0.02088 0.01962 0.00072 0.77287 0.00002 0.17667	0.00923 0.02088 0.01962 0.00039 0.77303 0.00001 0.17683	0.00923 0.02088 0.01962 0.00020 0.77313 0.00000 0.17693	0.00923 0.02088 0.01962 0.00009 0.77319 0.00000 0.17699	0.00923 0.02088 0.01962 0.00003 0.77321 0.00000	0.00923 0.02088 0.01962 0.00001 0.77322 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703
CASE= 0 P, ATM T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F=1 1.0000 2800.0 4580.3 1.2382-4 28.448 0.6154 1.1745 980.4	1.00.000 1.0000 2700.0 4400.3 1.2911-4 28.604 0.5503 1.1836 963.8	F/A= 0. 1.0000 2600.0 4220.3 1.3462-4 28.721 0.4936 1.1947 948.3	.01000 1.0000 2500.0 4040.3 1.4042-4 28.806 0.4467 1.2072 933.3	PERCENT F 1.0000 2400.0 3860.3 1.4657-4 28.865 0.4094 1.2202 918.4	1.0000 2300.0 3680.3	1.0000 2200.0 3500.3	PHI= 0.146 1.0000 2100.0 3320.3 1.6798-4 28.946 0.3434 1.2550 870.1	5 1.0000 2000.0 3140.3 1.7644-4 28.956 0.3315 1.2641 852.0	1.0000 1900.0 2960.3 1.8576-4 28.961 0.3225 1.2720 833.0	1.0000 1800.0 2780.3 1.9610-4 28.964 0.3153 1.2790 812.9	1.0000 1700.0 2600.3 2.0764-4 28.966 0.3094 1.2854 792.0	1.0000 1600.0 2420.3 2.2063-4 28.966 0.3042 1.2914 770.1
MOLE FRACTIONS AR CO CO2 H H02 H2 H20 N0 N0 N0 N0 N0 O O O O O O O O O O O O	0.00907 0.00574 0.01477 0.00213 0.00001 0.00069 0.01210 0.03138 0.00002 0.74368 0.02082 0.01083 0.14877	0.00912 0.00408 0.01654 0.00128 0.00001 0.00051 0.01373 0.02779 0.00002 0.74963 0.01410 0.00899 0.15421	0.00915 0.00973 0.01797 0.00072 0.00001 0.00036 0.01513 0.02423 0.00002 0.75454 0.00922 0.00720 0.15871	0.00918 0.00172 0.017905 0.00039 0.00001 0.00024 0.01629 0.02080 0.00001 0.75853 0.00587 0.00587	0.00920 0.00102 0.01979 0.00019 0.00015 0.01723 0.01756 0.00001 0.76173 0.00351 0.00416 0.16546	0.00921 0.00027 0.02027 0.00009 0.00001 0.0009 0.01795 0.01455 0.00001 0.76429 0.00202 0.00299	0.00922 0.00030 0.02056 0.00004 0.00000 0.00005 0.01849 0.01182 0.00001 0.76633 0.00111 0.00207 0.16999	0.00922 0.00014 0.02072 0.00002 0.00003 0.01889 0.00940 0.00001 0.76797 0.00057 0.00137	0.00923 0.00007 0.02081 0.00000 0.00000 0.00001 0.01916 0.00729 0.00028 0.00028 0.00087 0.17299	0.00923 0.00003 0.02085 0.00000 0.00000 0.00001 0.01935 0.00549 0.00012 0.00012 0.00012 0.00012	0.00923 0.00001 0.02087 0.00000 0.00000 0.00000 0.01947 0.00401 0.00001 0.77114 0.00001 0.00030 0.17491	0.00923 0.00000 0.02088 0.00000 0.00000 0.00000 0.01954 0.00281 0.00001 0.77178 0.00001 0.17556	0.00923 0.00000 0.02088 0.00000 0.00000 0.00000 0.01959 0.00189 0.00001 0.77227 0.00001 0.00008

TABLE II.—LISTING OF PARAMETER VARIATIONS FOR FIGURES 1 to 6

(b) (c) (d) (d) (e) (f) (g) (h) (i) (j) (s) (h) (i) (j) (c) (d) (e) (f) (g) (h) (i) (j) (j) (k) (i) (j) (j) (k) (k) (k) (k) (k) (k) (k) (k) (k) (k	ratio (weight) 0.000-0.080 .060-0.140 .000-0.080 .060-0.144 0.000-0.095	ratio// (stoichiometric fuel-air ratio),	250-1150 250-1200	500-2600 2600-1600 500-2700 2700-1600 250-2580 250-2630 250-2650 250-2670 250-2705 250-2730 250-2730 250-2730 250-2780 250-2810	0-2000 0-2030 0-2040	0.5-4.0 0.5-4.0 1.5-4.0 1.0-50.0 1.5 1.0 1.5 2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0	temperature, K		weight
(b) (c) (d) (d) (e) (f) (g) (h) (i) (j) (s) (h) (i) (j) (c) (d) (e) (f) (g) (h) (i) (j) (j) (k) (i) (j) (j) (k) (k) (k) (k) (k) (k) (k) (k) (k) (k	.060-0.140 .000-0.080 .060-0.140		250-1200	2600-1600 500-2700 2700-1600 250-2580 250-2630 250-2650 250-2690 250-2705 250-2735 250-2775 250-2780 250-2800 250-2800 250-2815	0-2000 0-2025 0-2030	0.5-4.0 4.0-50.0 4.0-50.0 0.5 1.0 1.5 2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(c) (d) (d) (e) (f) (g) (h) (h) (i) (g) (d) (e) (f) (g) (h) (h) (i) (i) (i) (i) (i) (i) (i) (i) (i) (i	.000-0.080 .060-0.140			500-2700 2700-1600 250-2580 250-2630 250-2650 250-2670 250-2705 250-2735 250-2775 250-2775 250-2780 250-2800 250-2800	0-2000 0-2030	4.0-50.0 4.0-50.0 0.5 1.0 1.5 2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(d)	.060-0.140 0.000-0.095			2700-1600 250-2580 250-2630 250-2650 250-2670 250-2690 250-2705 250-2730 250-2775 250-2780 250-2800 250-2800	0-2000 0-2030	4.0-50.0 0.5 1.0 1.5 2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(b) (c) (d) (e) (f) (g) (h) (i) (j) (c) (d) (e) (f) (g) (h) (i) (i) (i) (i) (i) (i) (i) (i) (i) (i				250-2630 250-2650 250-2670 250-2670 250-2705 250-2735 250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	0.5 1.0 1.5 2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(b) (c) (d) (e) (f) (g) (h) (i) (j) (c) (d) (e) (f) (g) (h) (i) (i) (i) (i) (i) (i) (i) (i) (i) (i				250-2630 250-2650 250-2670 250-2670 250-2705 250-2735 250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	1.0 1.5 2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(d) (e) (g) (h) (i) (j) (k) (c) (d) (e) (f) (g) (h) (i) (i) (j) (i) (j) (i) (j) (i) (j)	0.000-0.095		250-1200	250-2670 250-2690 250-2705 250-2730 250-2735 250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	2.0 3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(e) (f) (g) (h) (i) (i) (j) (m) 3(a) (c) (d) (e) (f) (g) (h) (i) (j)	0.000-0.095		250-1200	250-2690 250-2705 250-2730 250-2755 250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	3.0 4.0 6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(g) (h) (i) (j) (k) (l) (m) 3(a) (b) (c) (d) (e) (f) (g) (h) (i)	0.000-0.095		250-1200	250-2730 250-2755 250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	6.0 10.0 15.0 20.0 30.0 40.0 50.0			
(h) (i) (i) (k) (l) (m) 33(a) (b) (c) (d) (e) (f) (g) (h) (i) (i) (j)	0.000-0.095		250-1200	250-2755 250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	10.0 15.0 20.0 30.0 40.0 50.0			
(j) (k) (l) (m) 3(a) (b) (c) (d) (e) (f) (g) (h) (i) (j)	0.000-0.095		250-1200	250-2775 250-2780 250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	15.0 20.0 30.0 40.0 50.0			
(k) (l) (m) 3(a) 0. (b) (c) (d) (e) (f) (g) (h) (i) (j)	0.000-0.095		250-1200	250-2800 250-2815 250-2830	0-2000 0-2025 0-2030	30.0 40.0 50.0			
(l) (m) 3(a) 0. (b) (c) (d) (e) (f) (g) (h) (i) (j)	0.000-0.095		250-1200	250-2815 250-2830	0-2000 0-2025 0-2030	40.0 50.0 0.5			
3(a) 0. (b) (c) (d) (e) (f) (g) (h) (i) (j)	0.000-0.095		250-1200		0-2000 0-2025 0-2030	0.5			
(b) (c) (d) (e) (f) (g) (h) (i)	0.000-0.095		250-1200		0-2025 0-2030		l		l
(c) (d) (e) (f) (g) (h) (i) (j)					0-2030	1.0		l '	
(d) (e) (f) (g) (h) (i)						1.5			
(f) (g) (h) (i)						2.0			
(g) (h) (i) (j)					0-2045	3.0			
(h) (i) (j)					0-2050 0-2060	4.0 6.0			
(j)	1 1				0-2070	10.0			
	1 1				0-2080 0-2085	15.0 20.0			
(k)					0-2090	30.0			
(l) (m)	♦		\		0-2095	40.0			
	, , , , , , , , , , , , , , , , , , , ,		<u> </u>		0-2098	50.0			
4(a) 0. (b)	0.000-0.06824					0.5 1.0	300-2800	1.400-1.134 1.400-1.139	
(c)						1.5		1.400-1.143	
(d) (e)						2.0 3.0		1.400-1.146	
(f)						4.0		1.400-1.151	
(g) (h)						6.0		1.400-1.156	
(ii)						10.0 15.0		1.400-1.160 1.400-1.165	
(j)						20.0		1.400-1.168	
(k) (l)	1					30.0 40.0	1 1	1.400-1.172 1.400-1.175	
(m)	▼					50.0	. ▼	1.400-1.178	
5(a) 0.	0.000-0.06824					0.5	300-2800		28.97-27.6
(b)					*****	1.0			28.97-27.6
(c) (d)						1,5 2.0			28.97-27.6 28.97-27.7
(e)						3.0			28.97-28.0
(f) (g)						4.0 6.0			28.97-28.0 28.97-28.0
(h)					-	10.0			28.97-28.2
(i) (j)						15.0 20.0			28.97-28.3 28.97-28.3
(k)						30.0			28.97-28.4
(l)						40.0	₩		28.97-28.5
(m)	· -	0.10.1.00	440 1440			50.0			28.97-28.5
6(a) (b)		0.10-1.00	250-1250	540-2580 540-2620		0.5 1.0			
(c)				540-2650		1.5			
(d) (e)				540-2665 540-2685		2.0 3.0			
(f)				540-2700		4.0			
(g)				540-2725		6.0		***************************************	
(h) (i)				540-2750 540-2770		10.0 15.0			
()				540-2790		20.0			
(k) (l)				540-2805 540-2815	****	30.0 40.0			
		V	▼	540-2830	-	50.0			

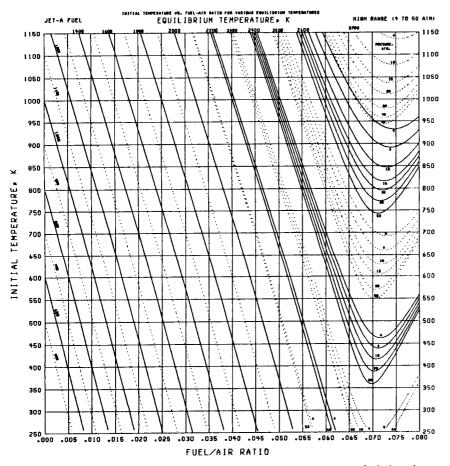


Figure 1.—Equilibrium temperature as function of initial temperature, fuel-air ratio, and pressure range of 4 to 50 atmospheres. Reproduction of microfiche figure 1(c).

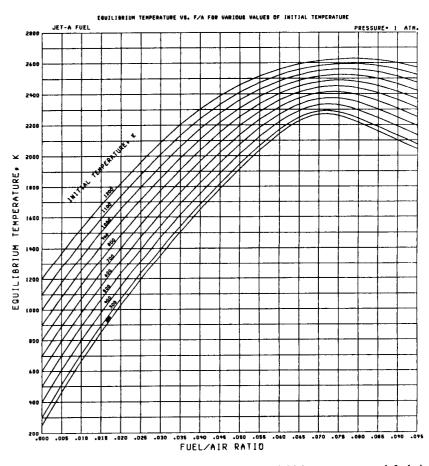


Figure 2.—Equilibrium temperature as function of initial temperature and fuel-air ratio at pressure of 1 atmosphere. Reproduction of microfiche figure 2(b).

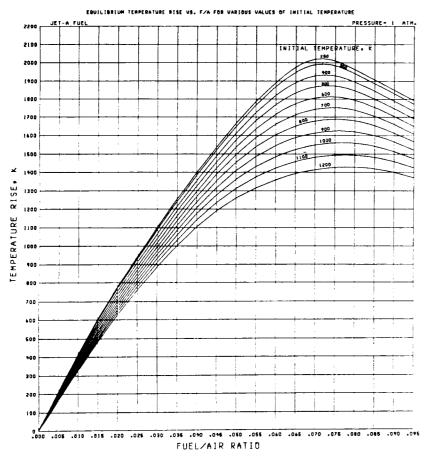


Figure 3.—Equilibrium temperature rise as function of initial temperature and fuel-air ratio at pressure of 1 atmosphere. Reproduction of microfiche figure 3(b).

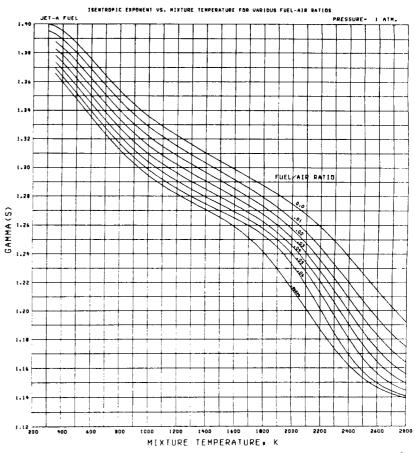


Figure 4.— $\gamma(s)$ as function of mixture temperature and fuel-air ratio at pressure of 1 atmosphere. Reproduction of microfiche figure 4(b).

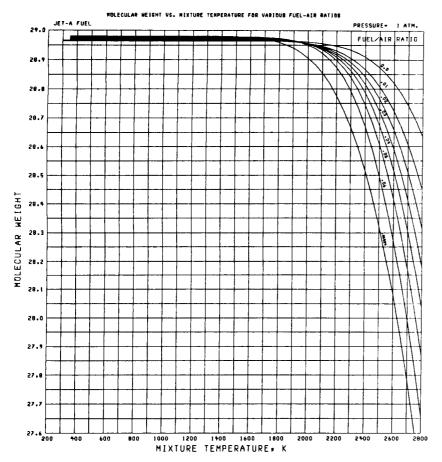


Figure 5.—Molecular weight as function of mixture temperature and fuel-air ratio at pressure of 1 atmosphere. Reproduction of microfiche figure 5(b).

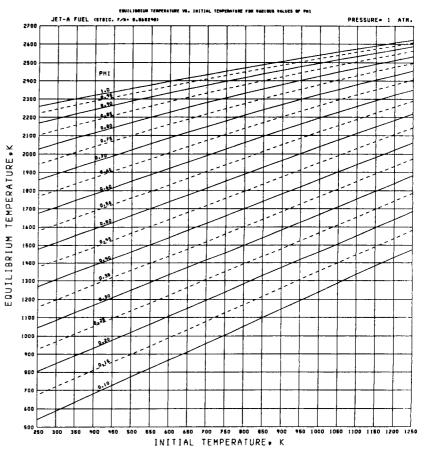
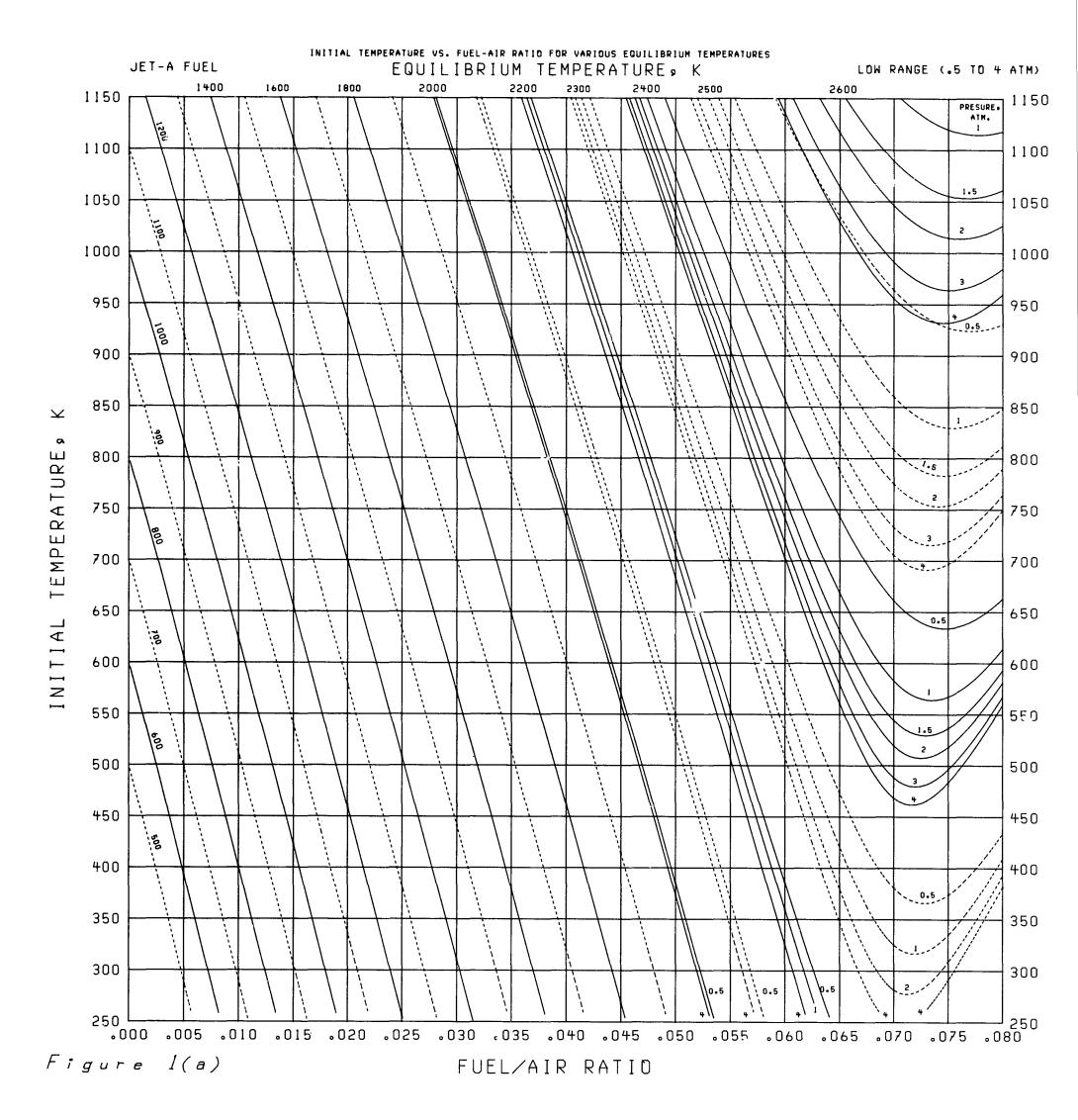
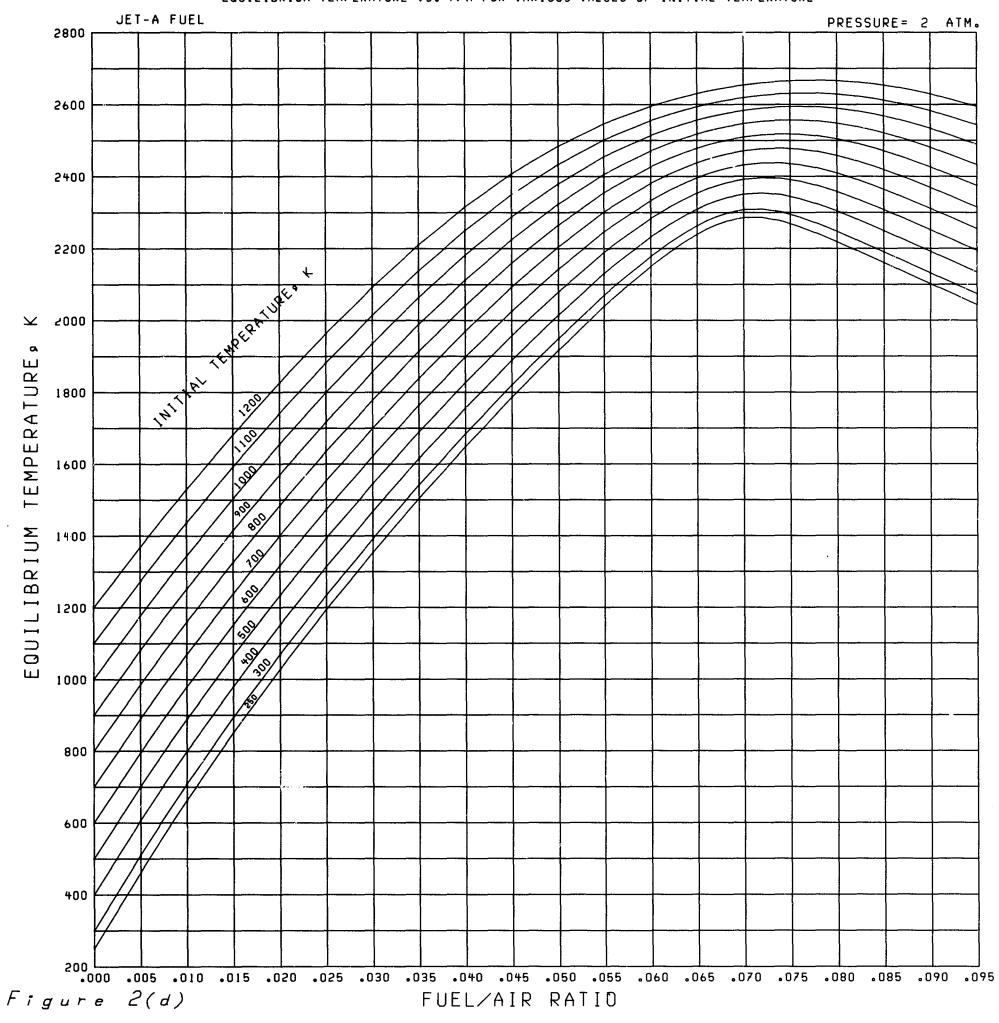


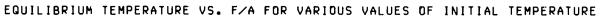
Figure 6.—Equilibrium temperature as function of initial temperature and equivalence ratio ϕ at pressure of 1 atmosphere. Reproduction of microfiche figure 6(b).

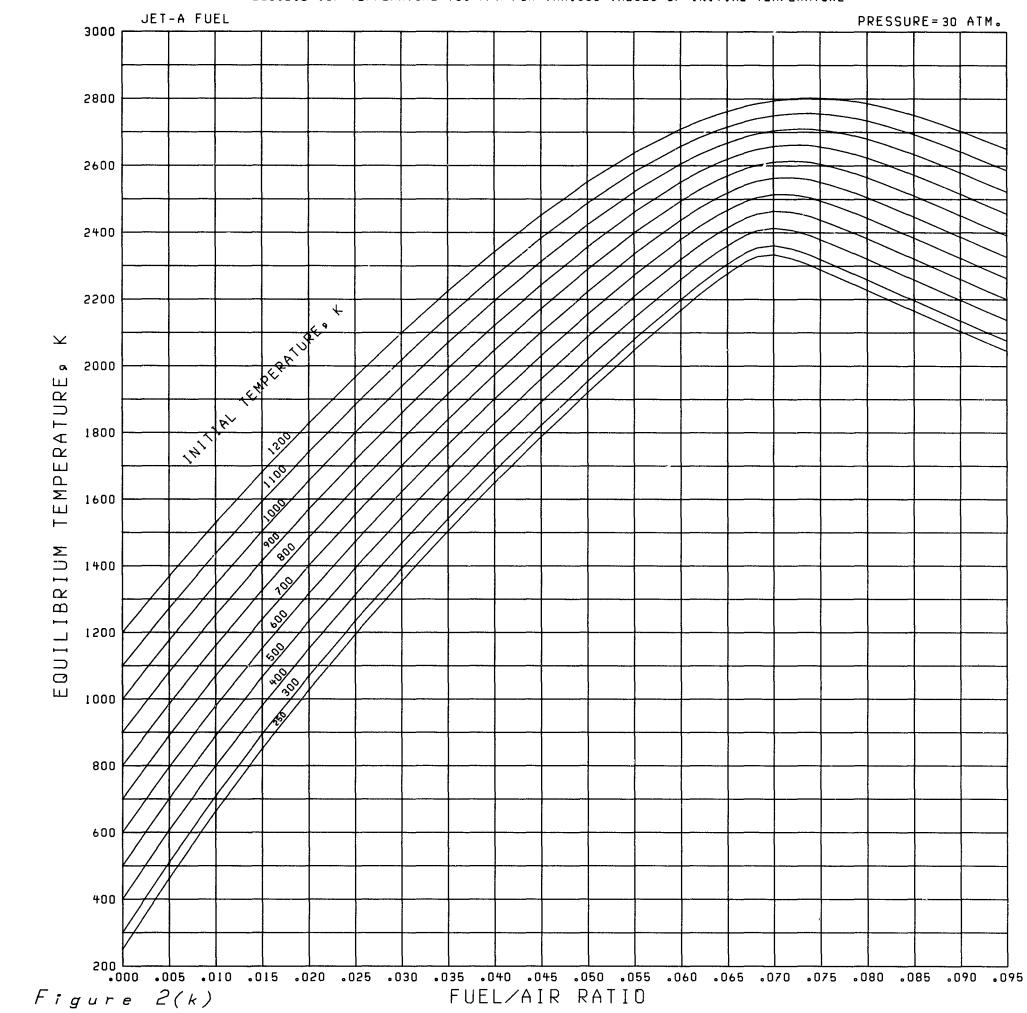
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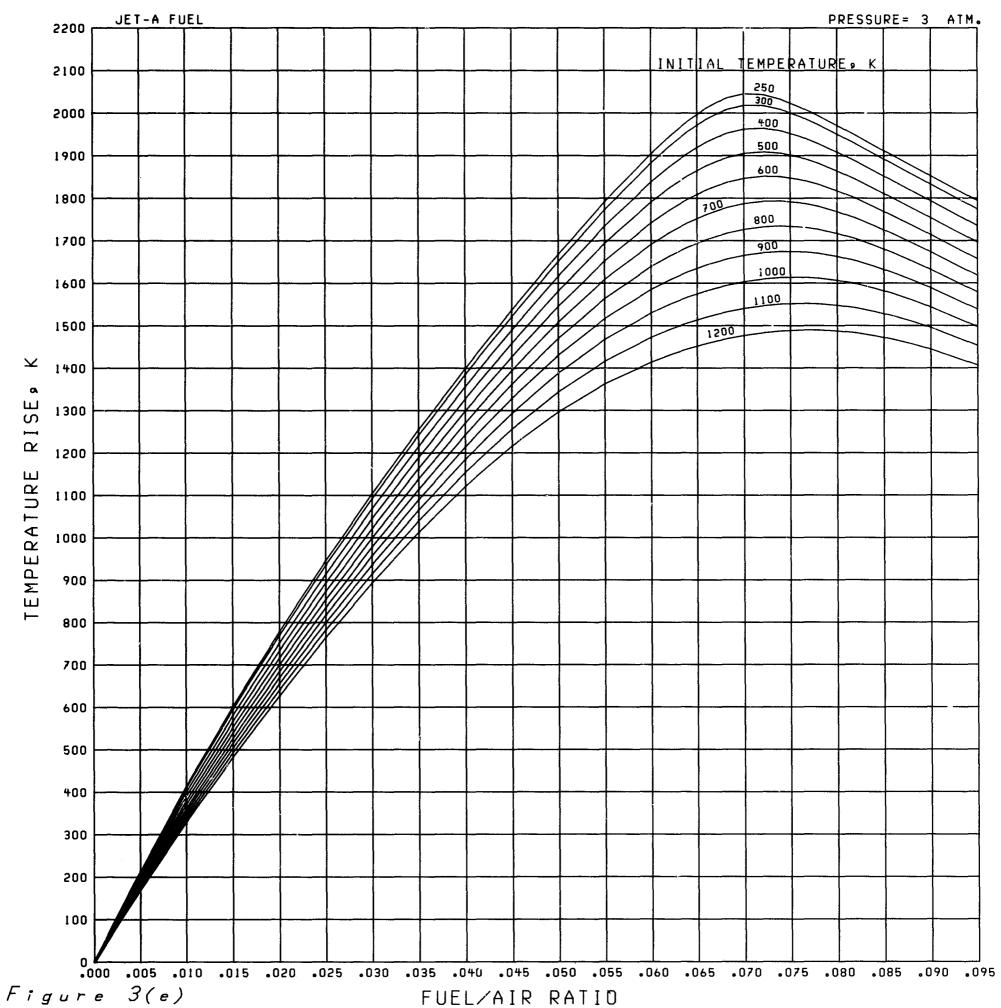


EQUILIBRIUM TEMPERATURE VS. F/A FOR VARIOUS VALUES OF INITIAL TEMPERATURE

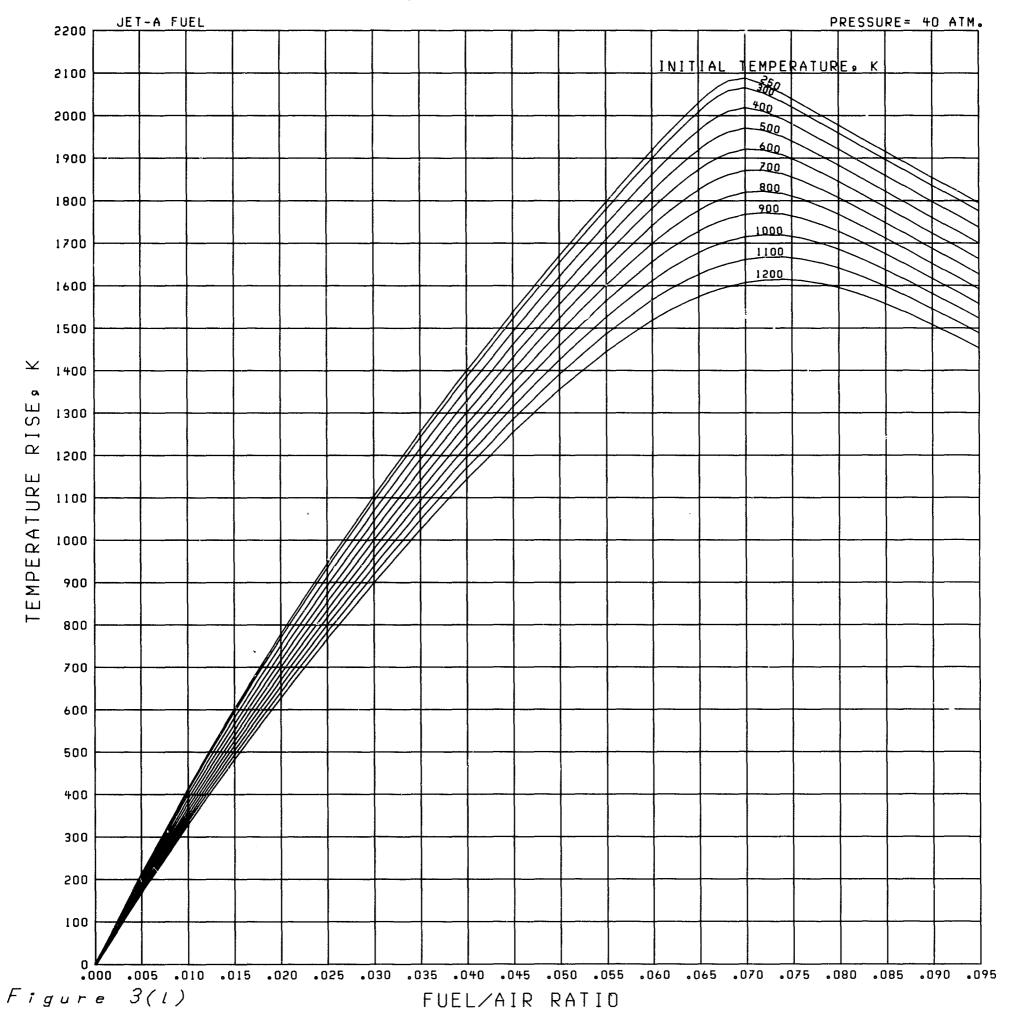


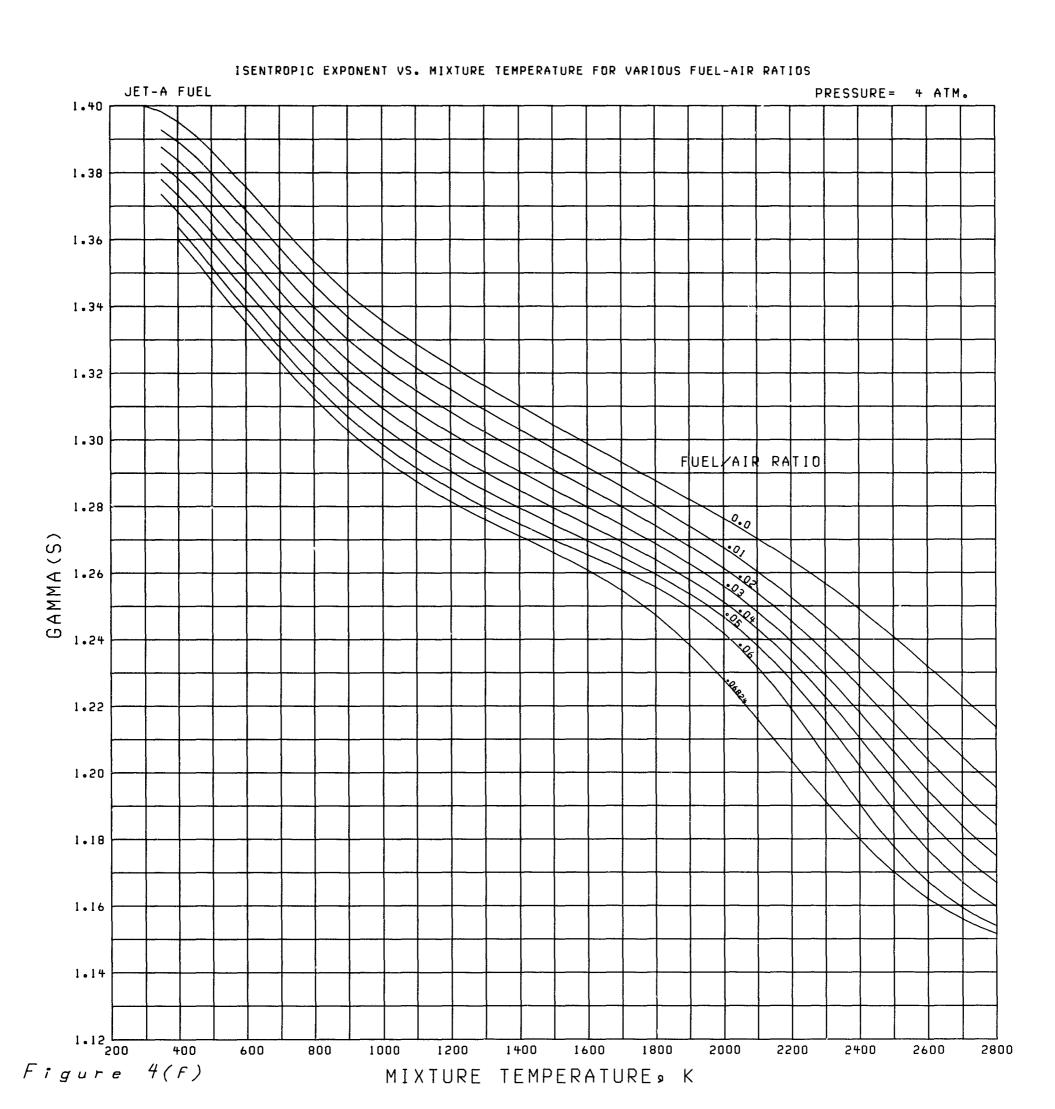




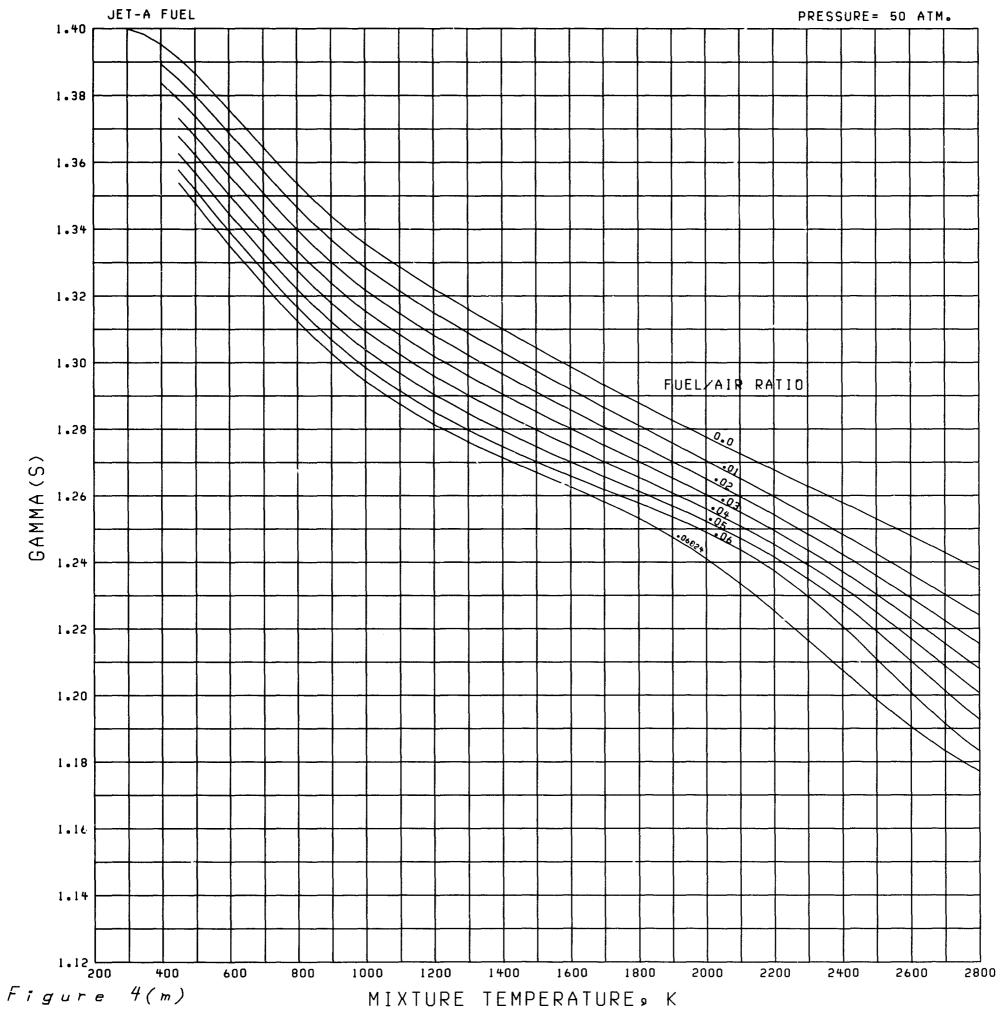


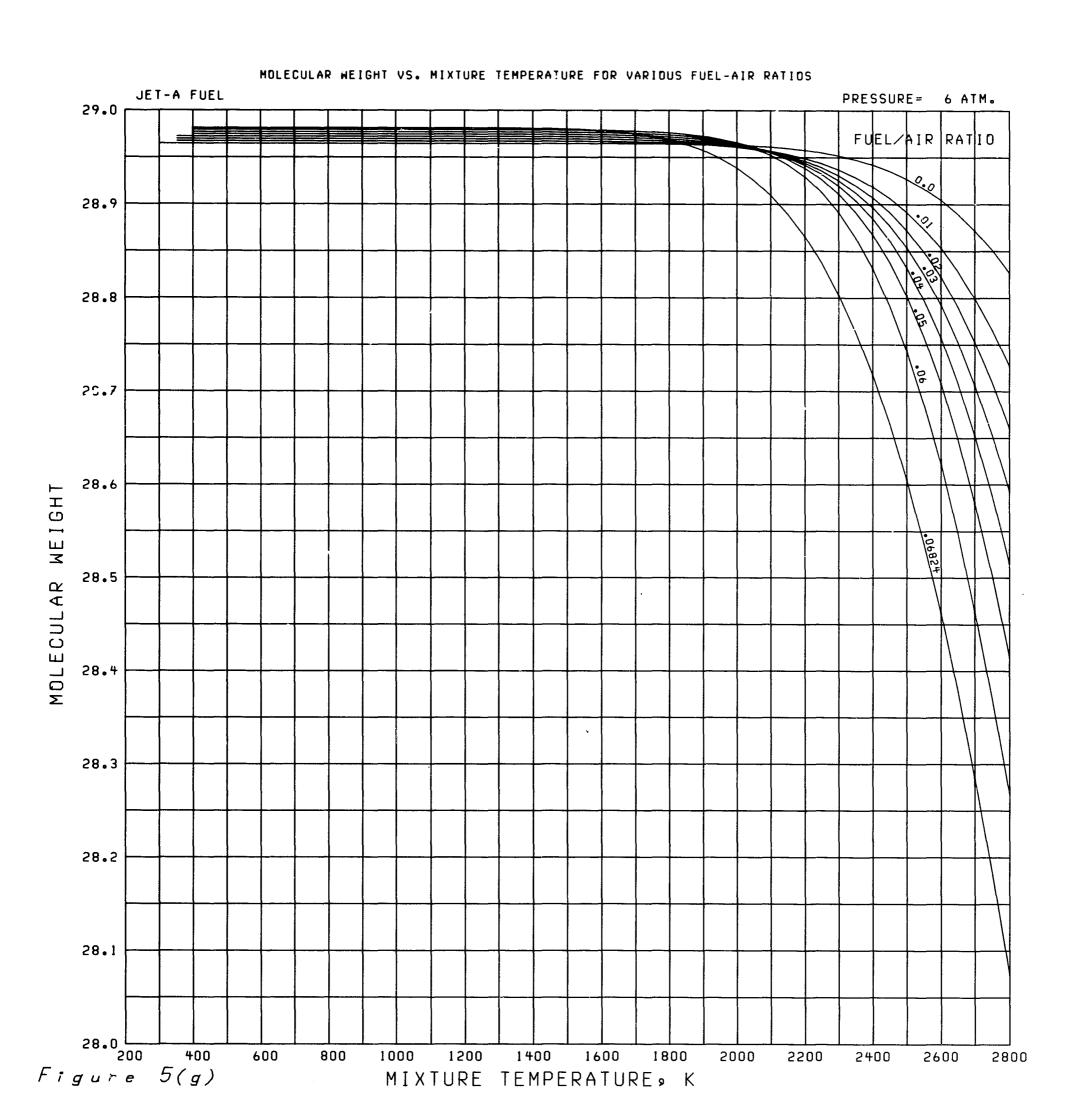
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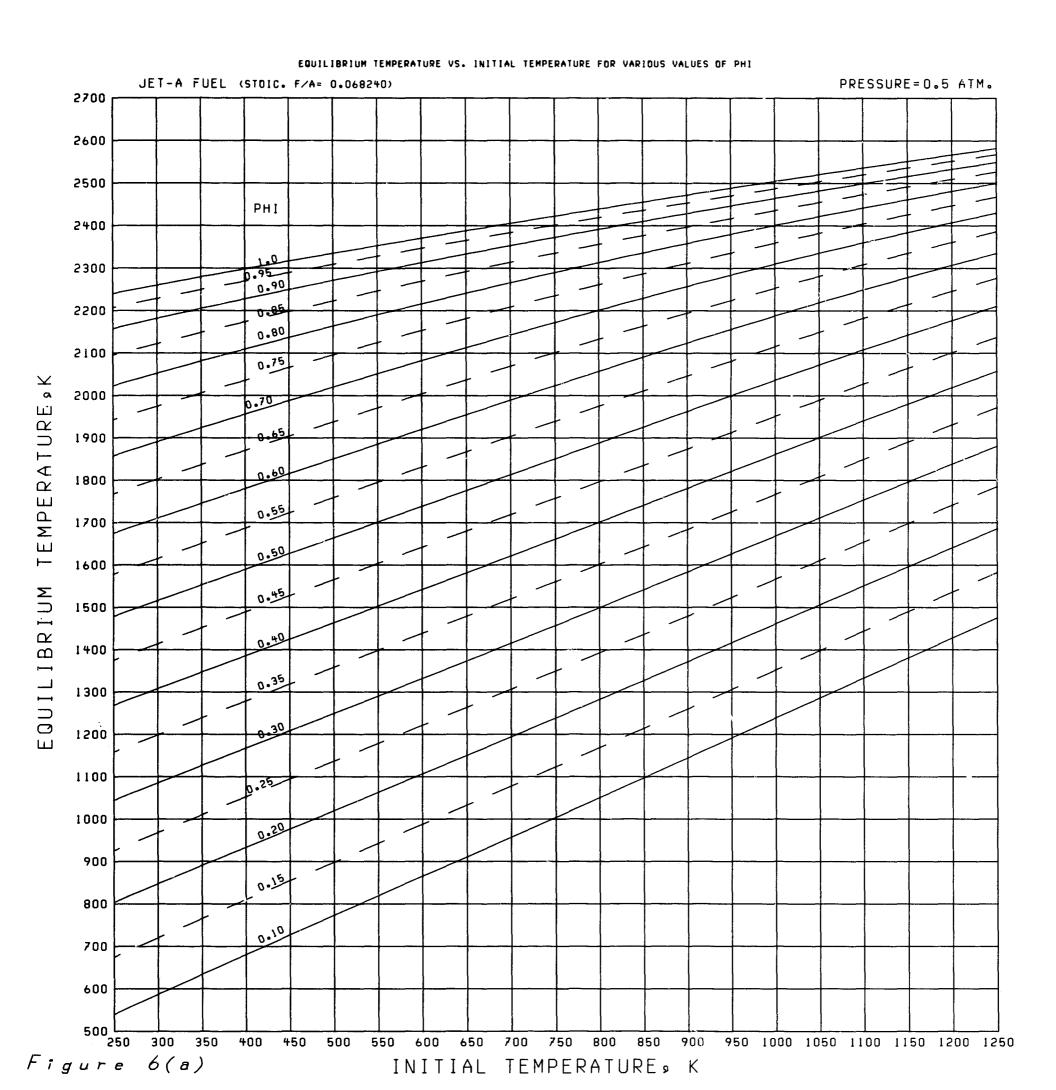


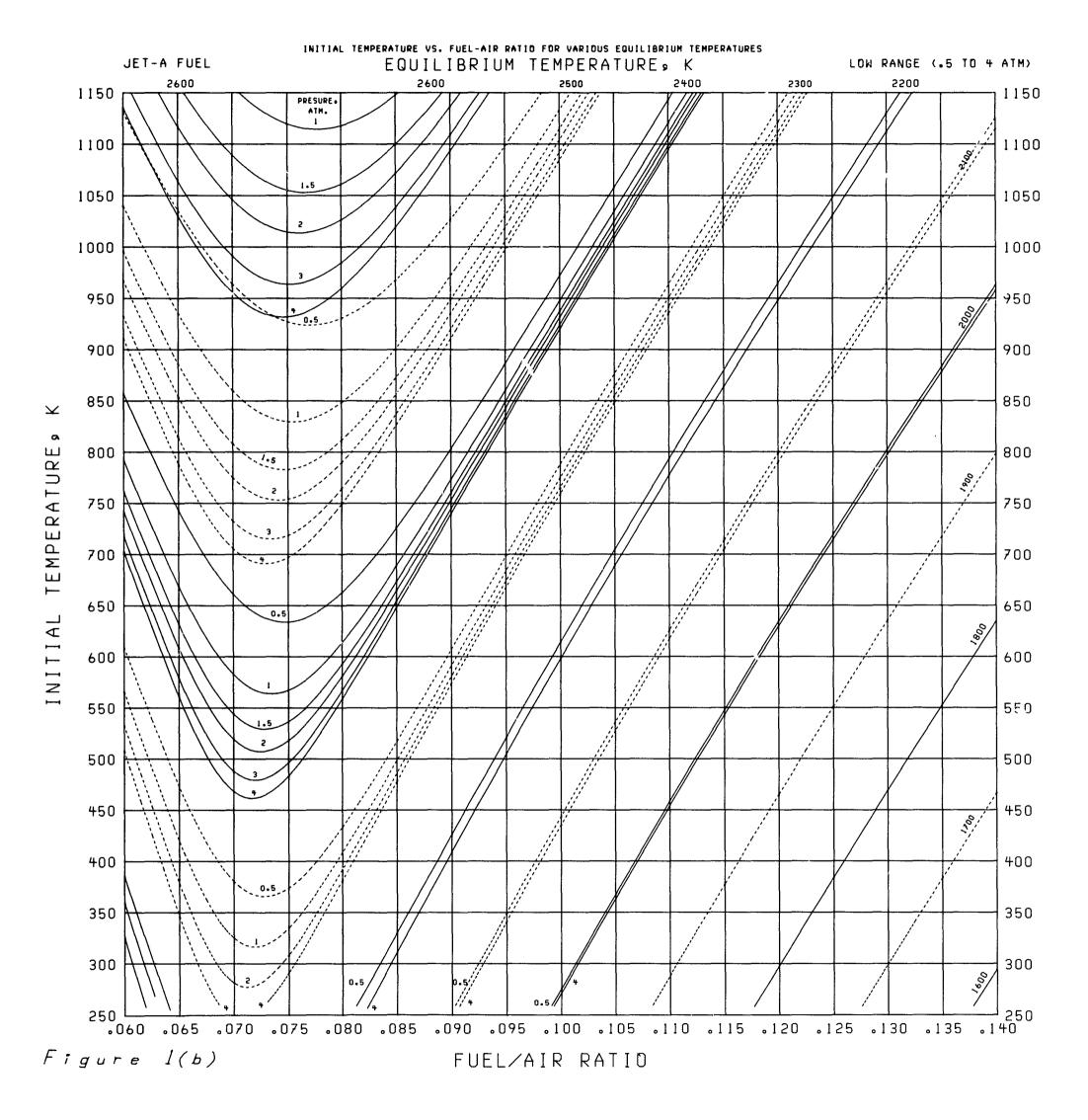


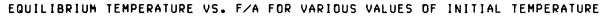
ISENTROPIC EXPONENT VS. MIXTURE TEMPERATURE FOR VARIOUS FUEL-AIR RATIOS

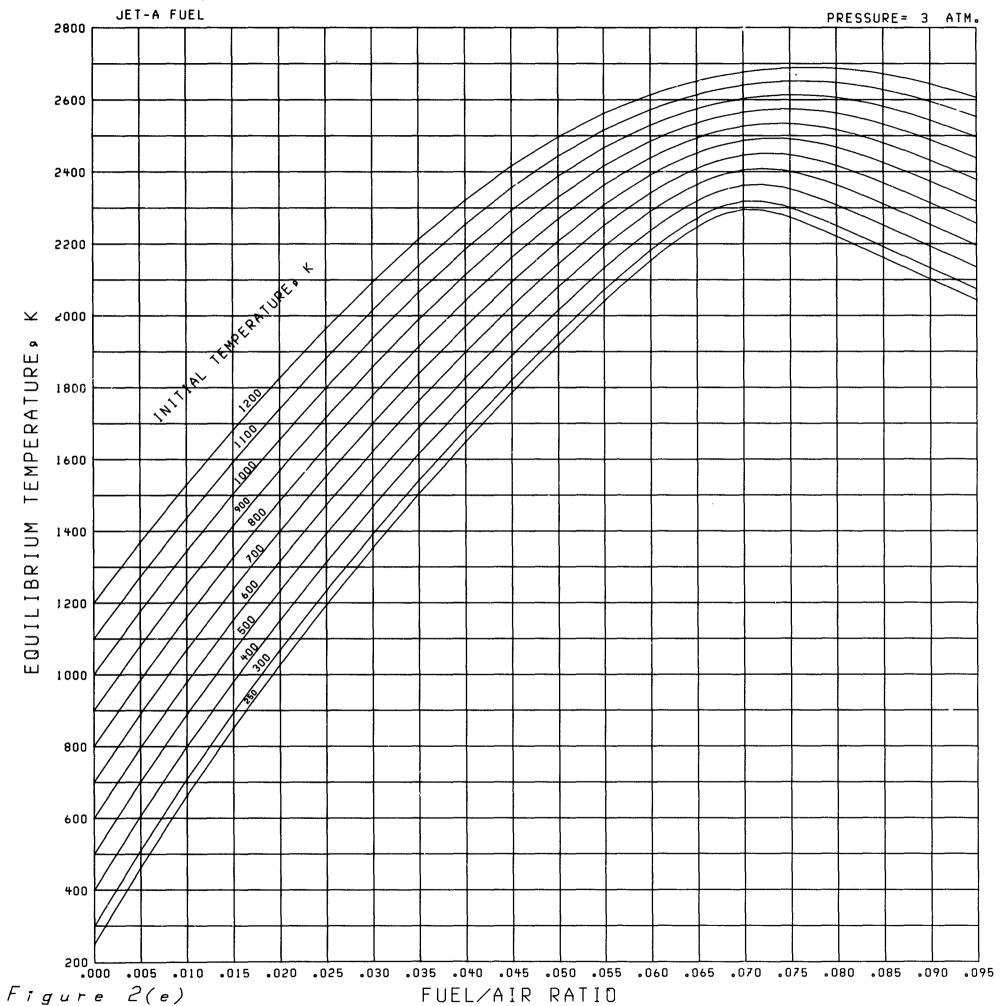


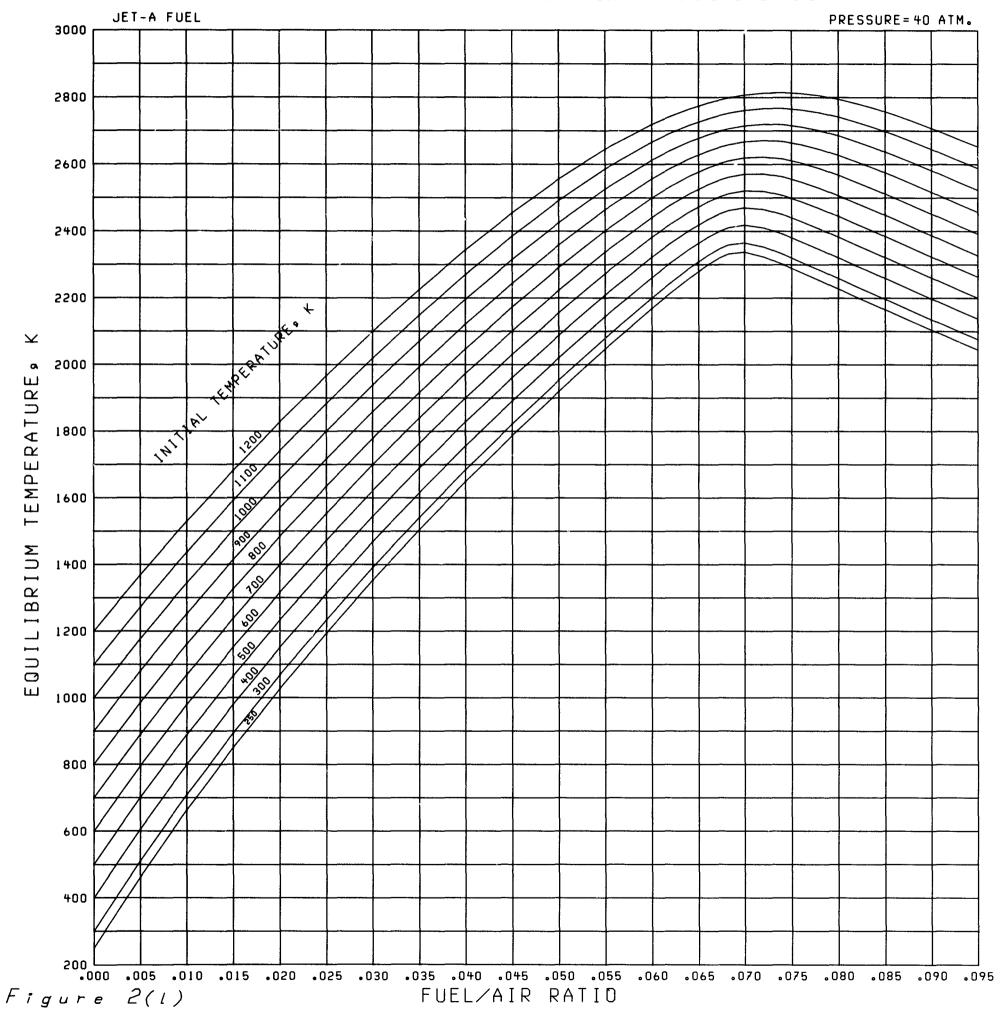


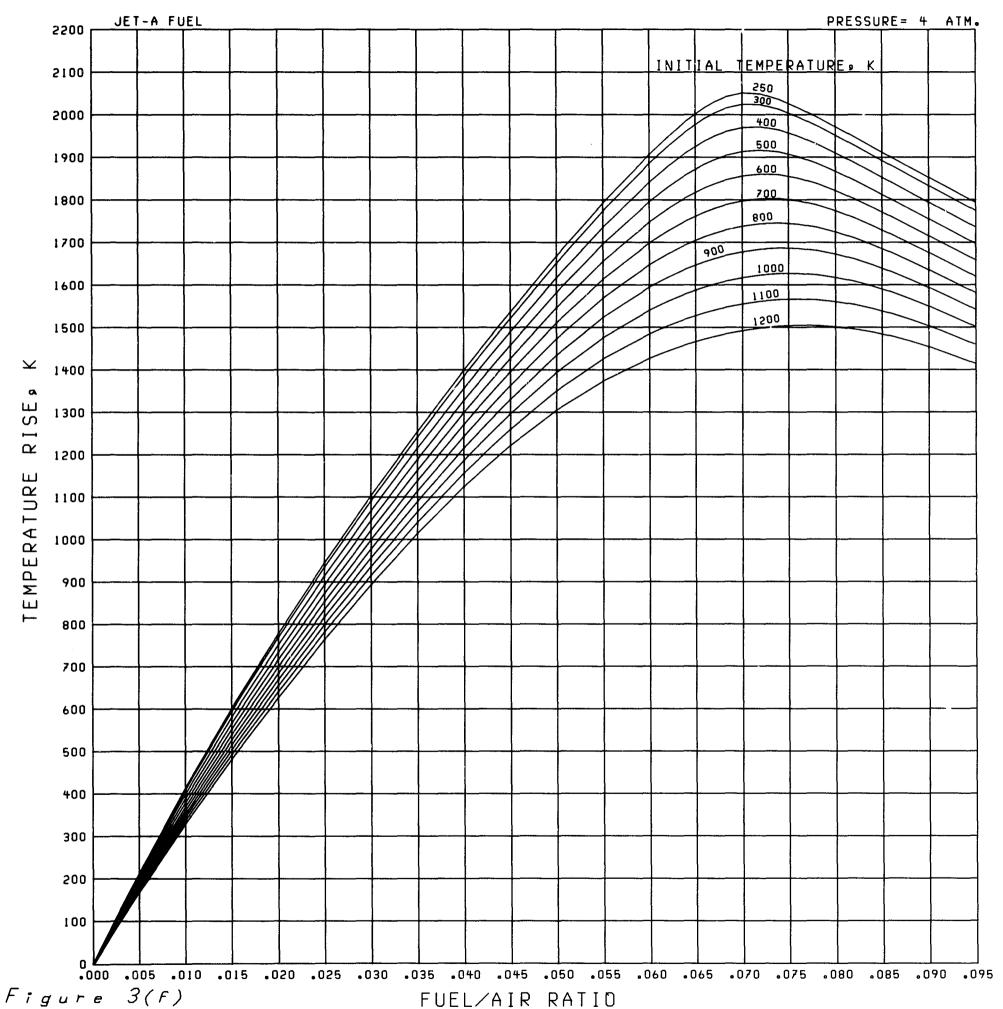


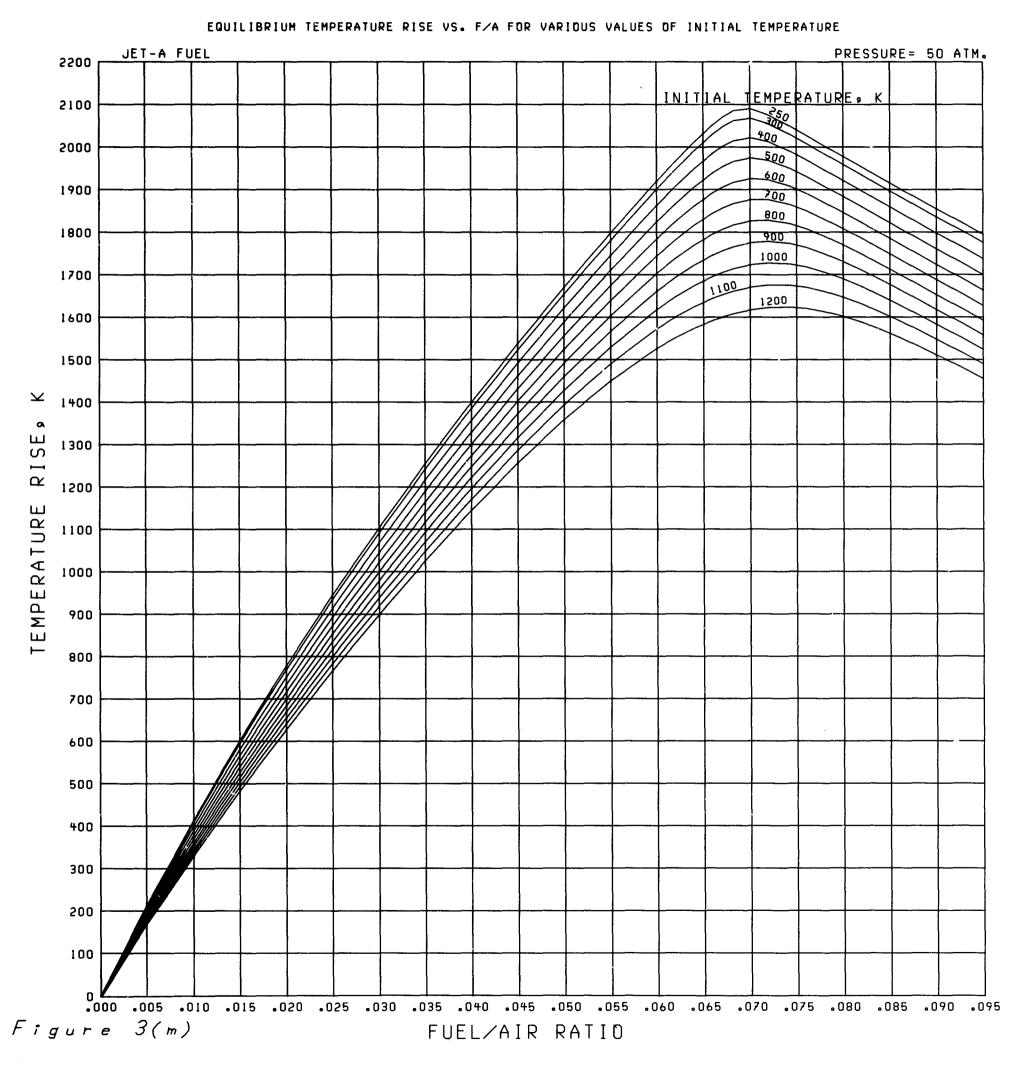


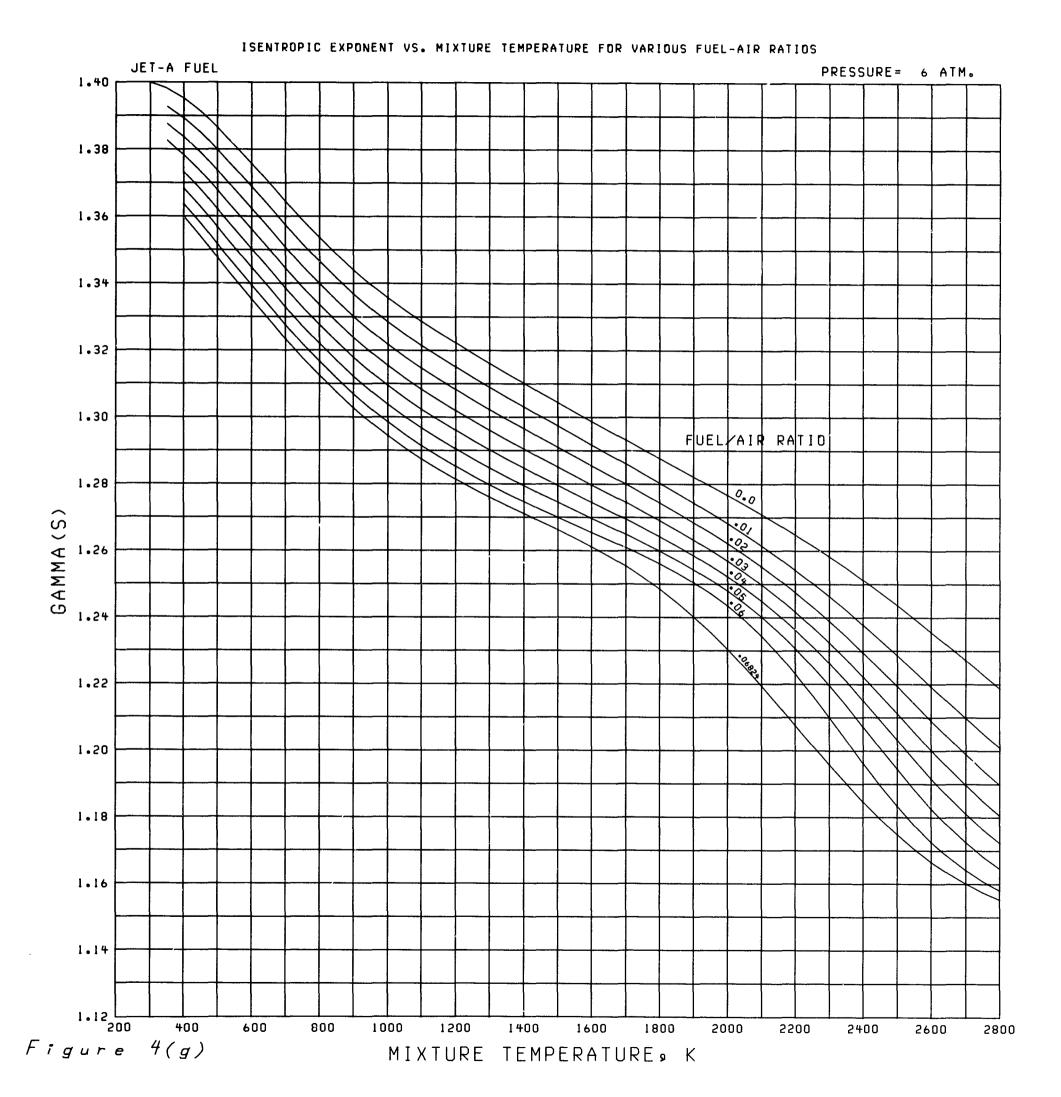












MOLECULAR WEIGHT

MOLECULAR WEIGHT VS. MIXTURE TEMPERATURE FOR VARIOUS FUEL-AIR RATIOS JET-A FUEL PRESSURE = 0.5 ATM. 29.0 FUEL/AIR RATIO 28.9 28.8 28.7 28.6 28.5 28.4 28.3 28.2 28.1 28.0 27.9 27.8 27.7

27.6 200 400 Figure 5(a) MIXTURE TEMPERATURE, K

800

600

1000

1200

1400

1600

1800

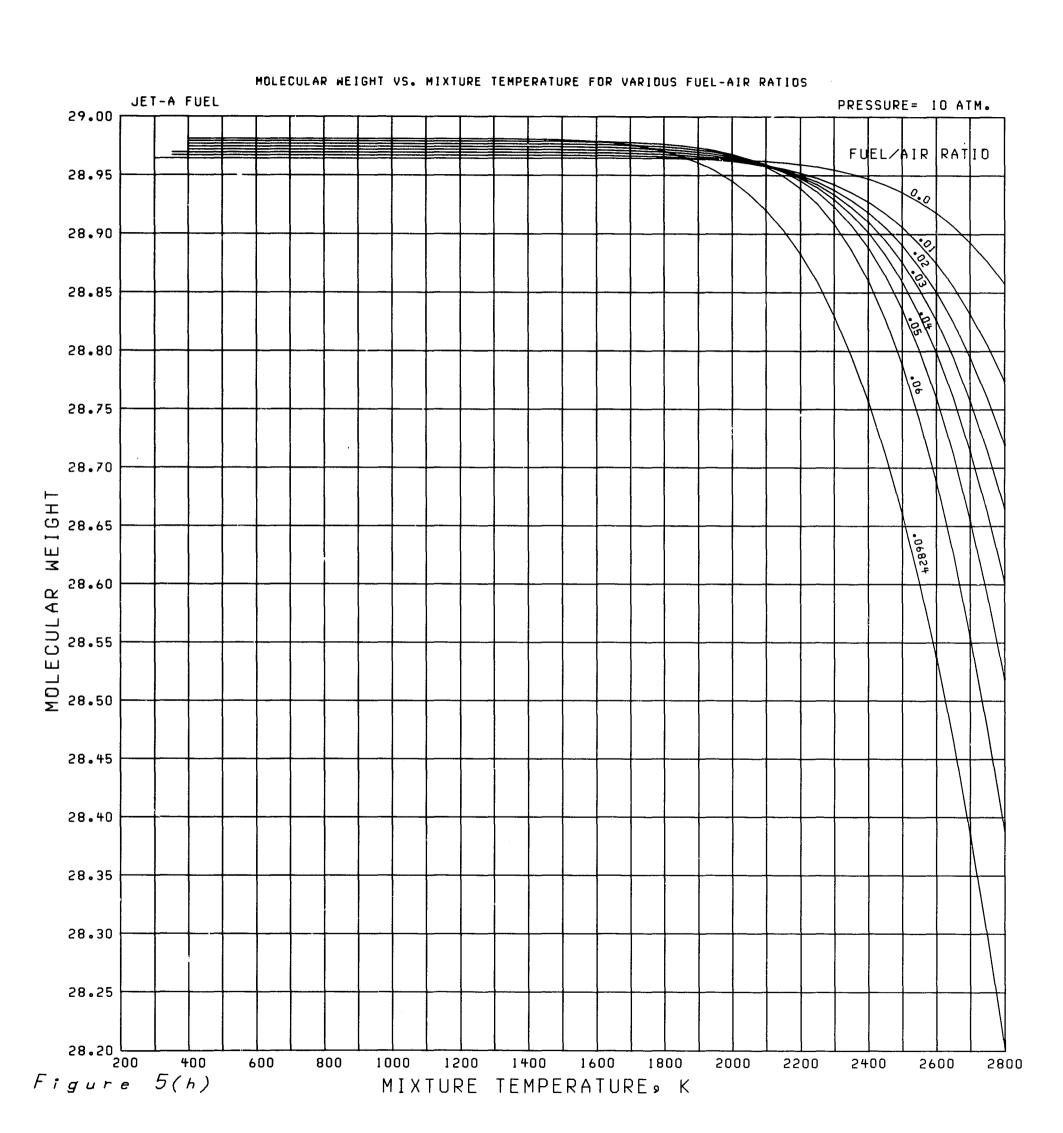
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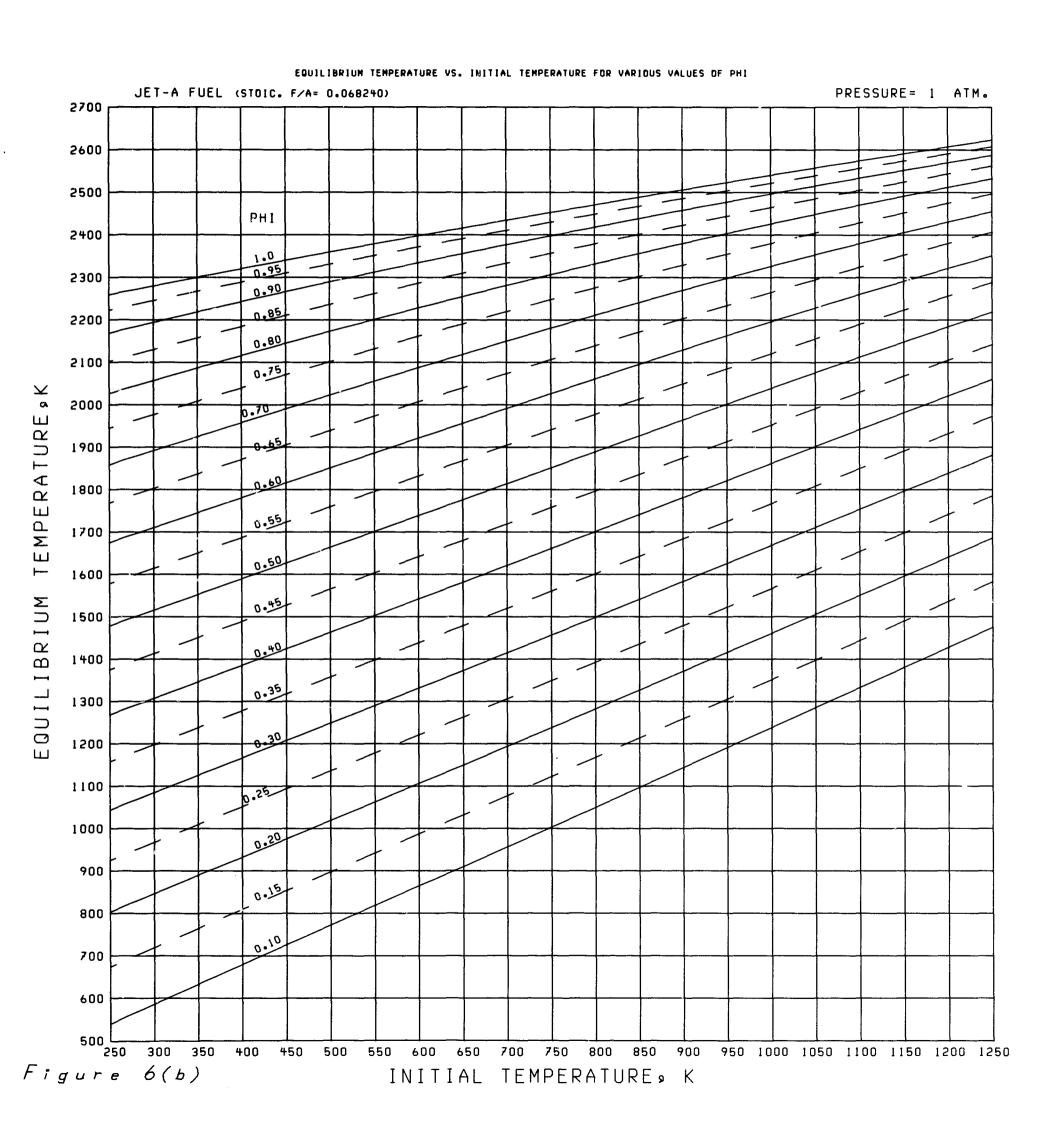
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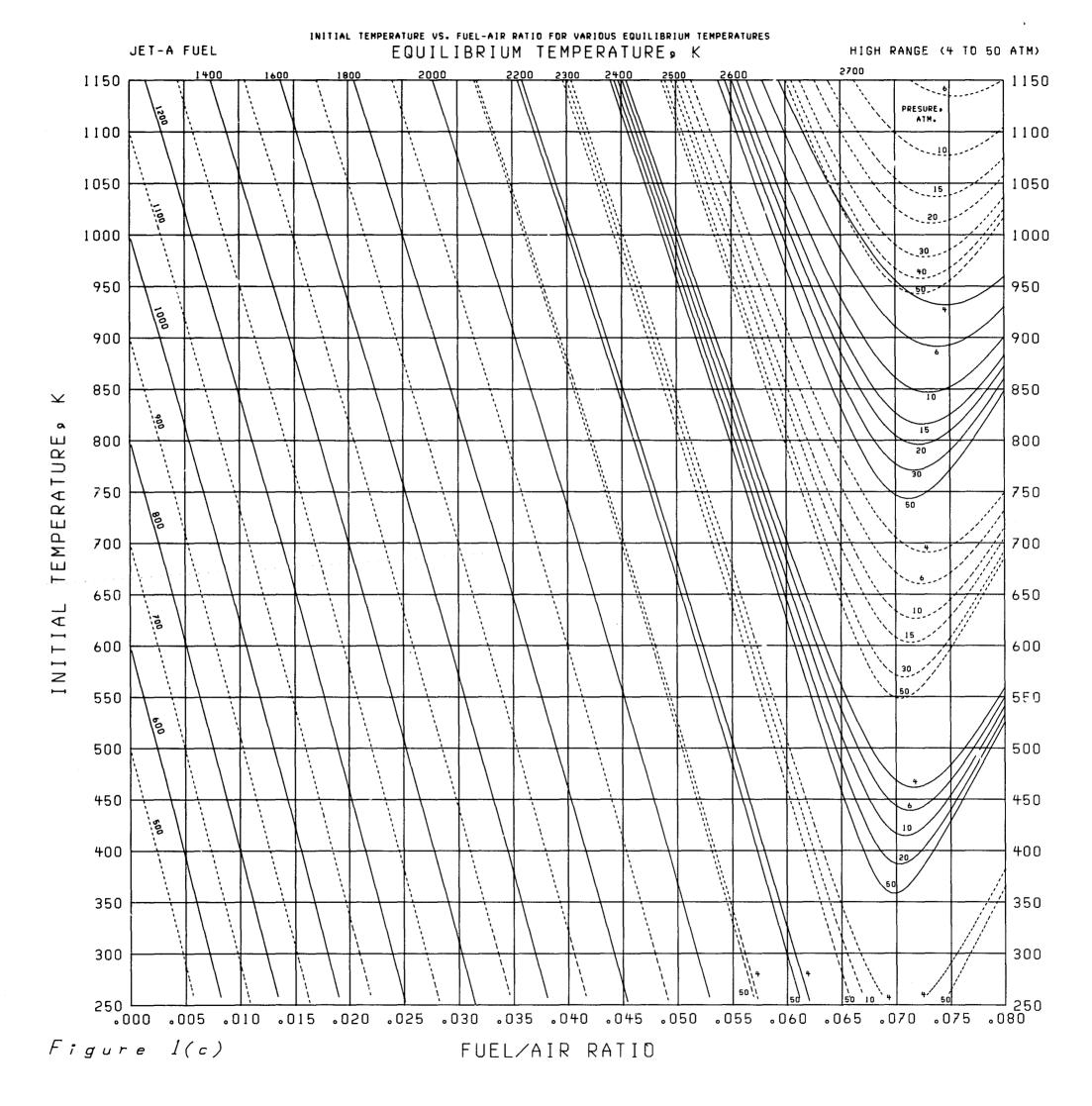
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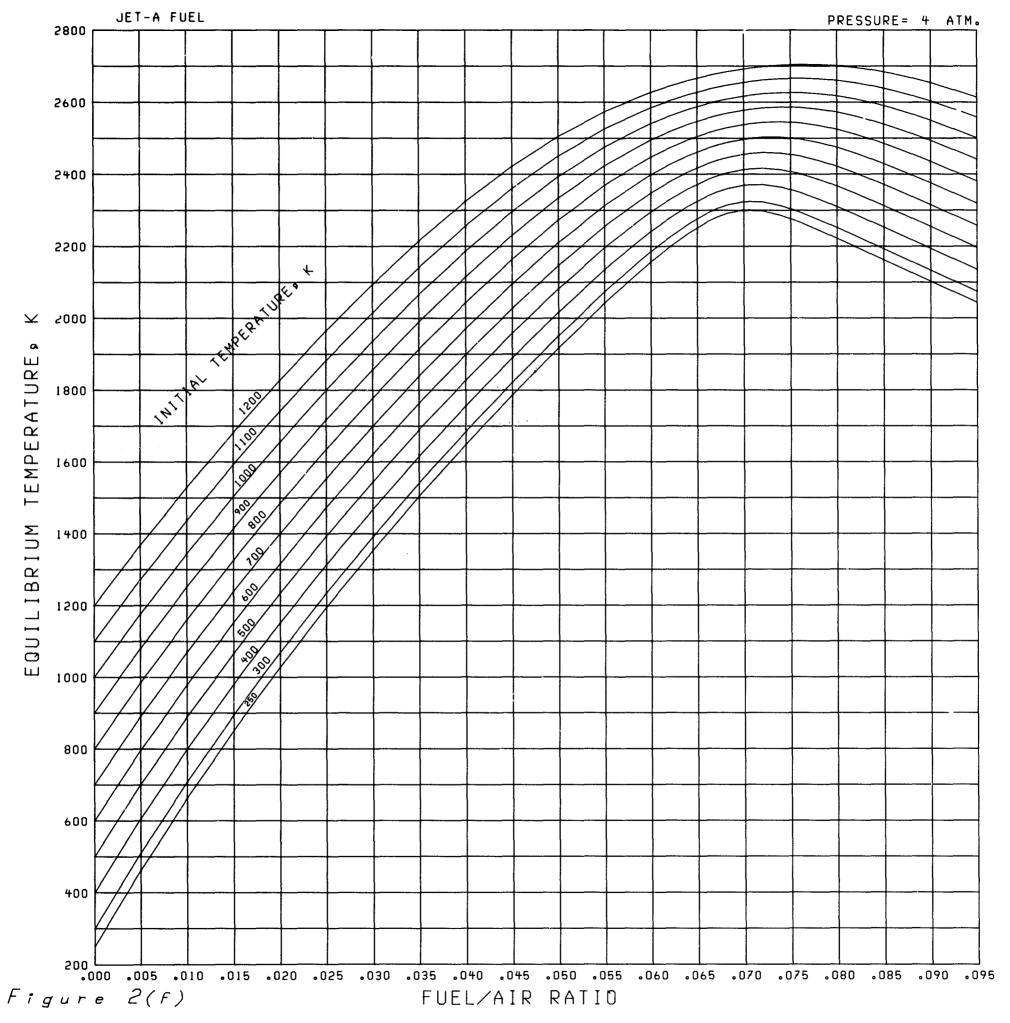
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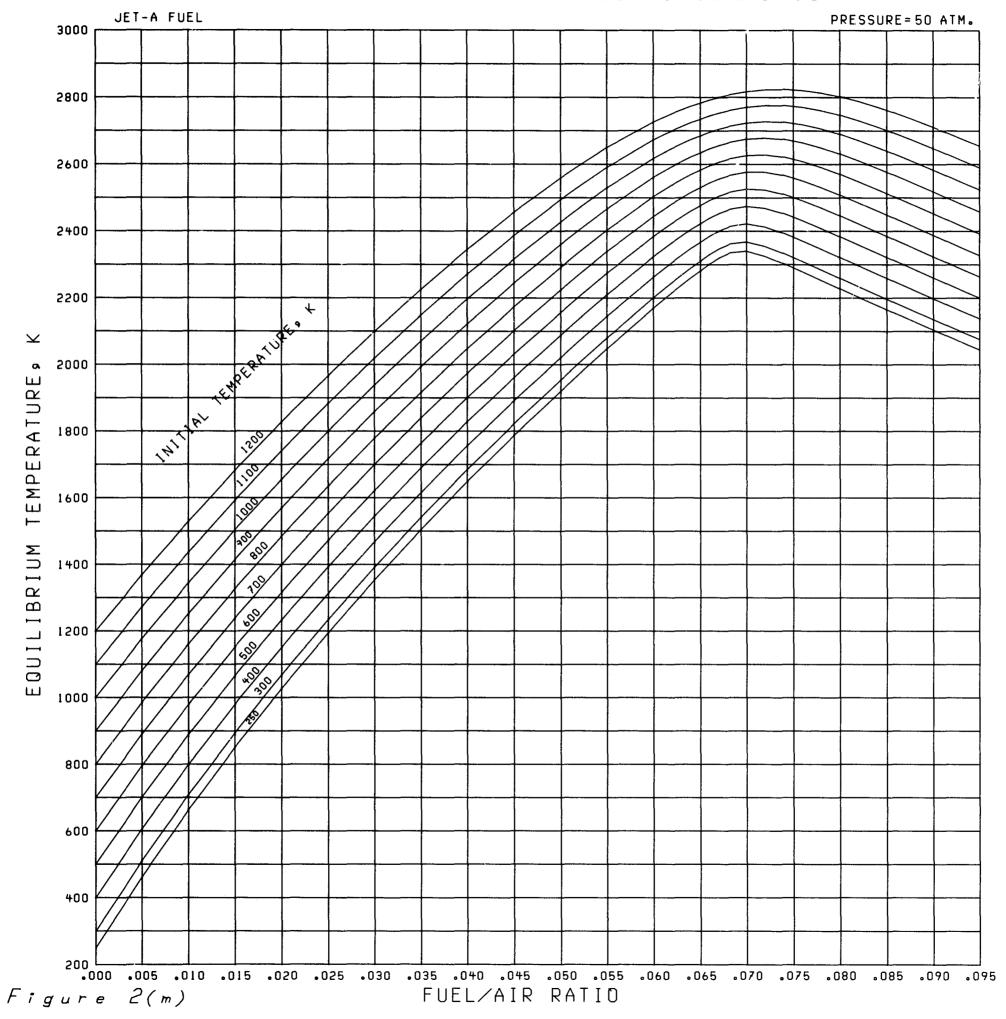
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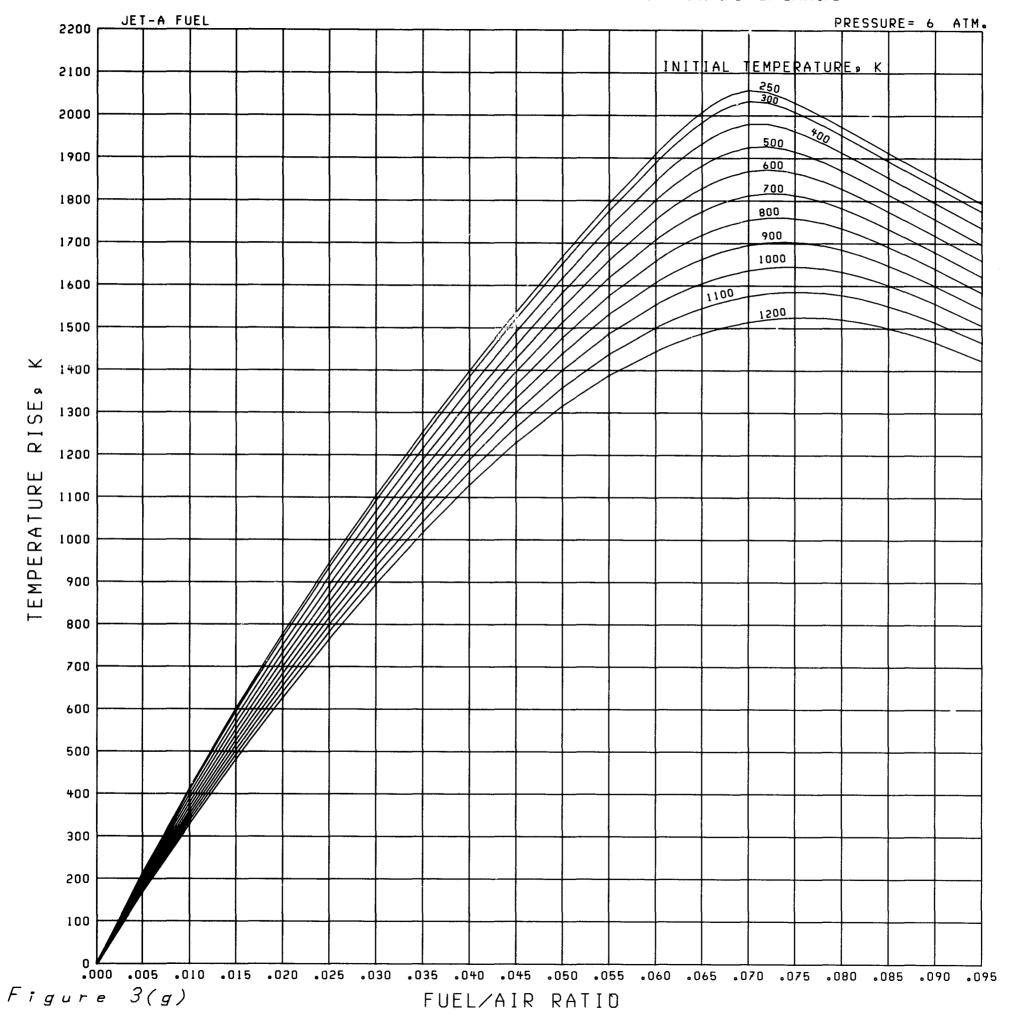


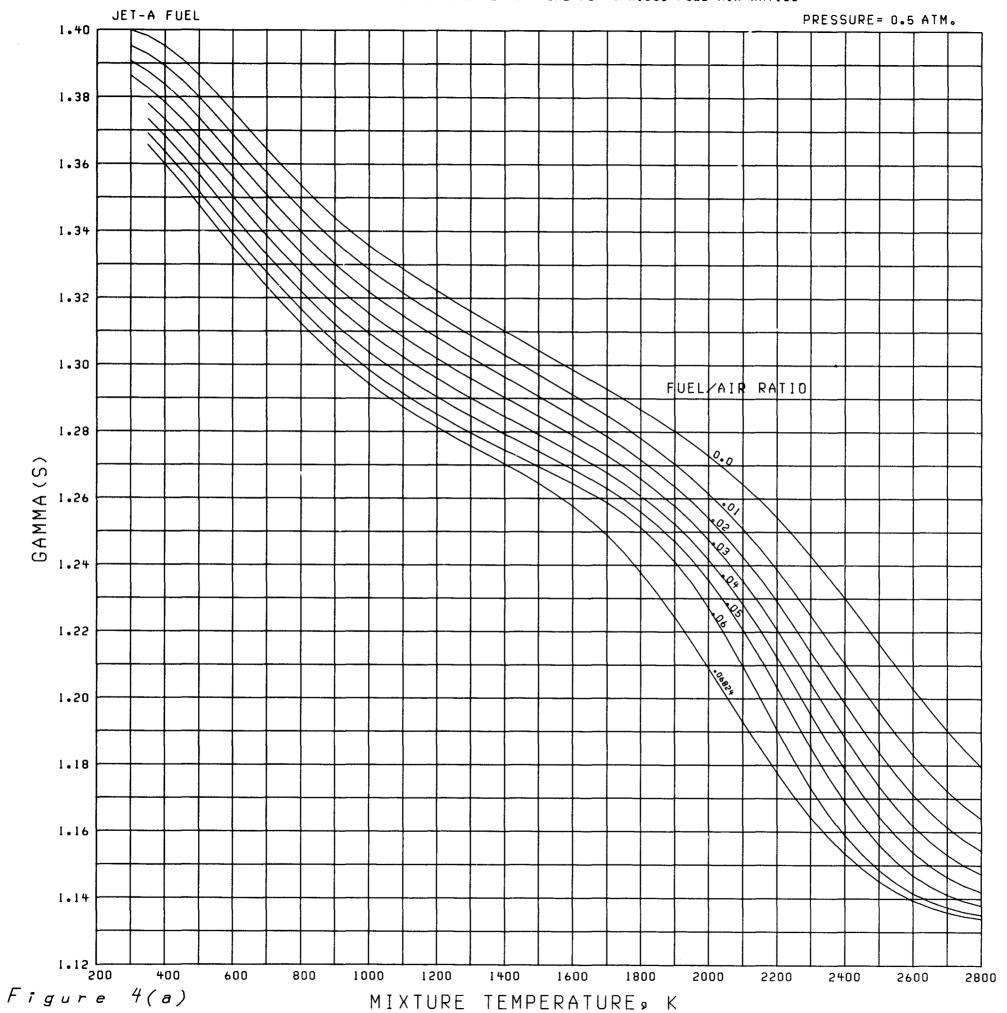


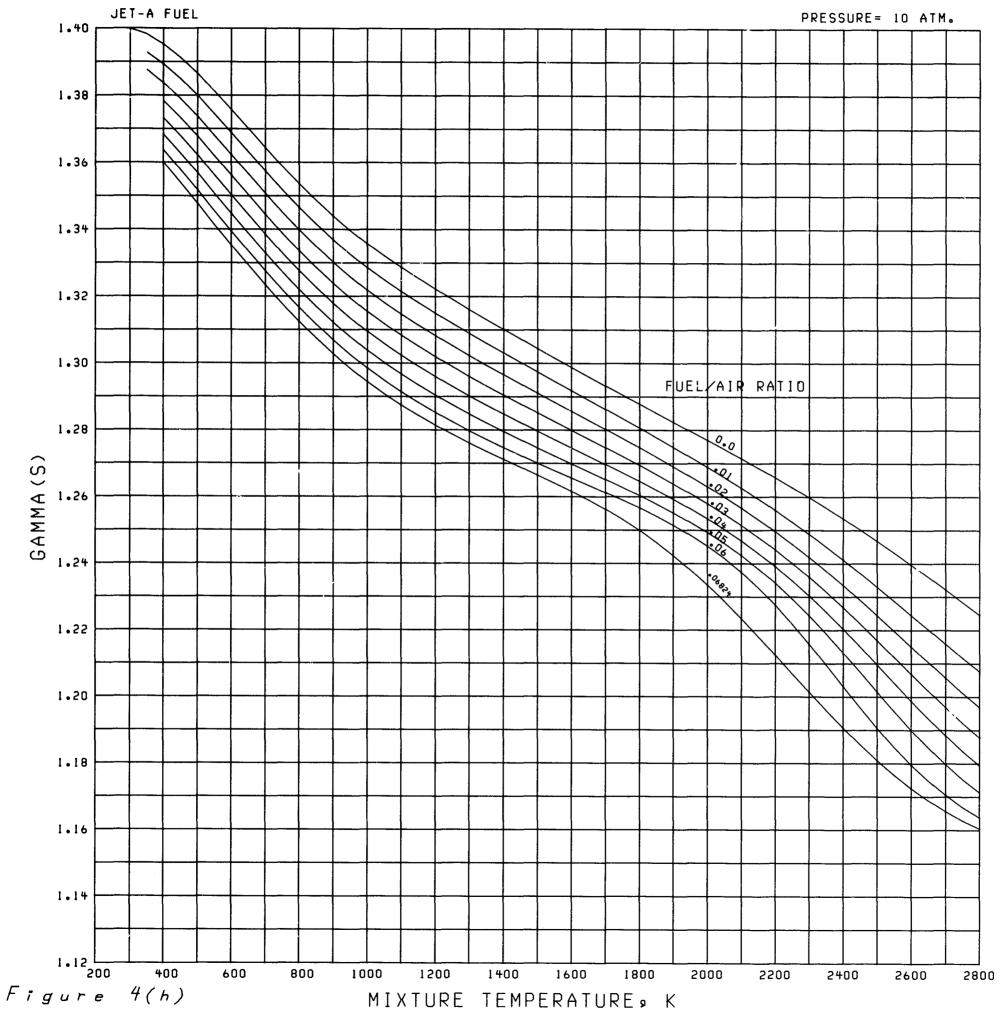


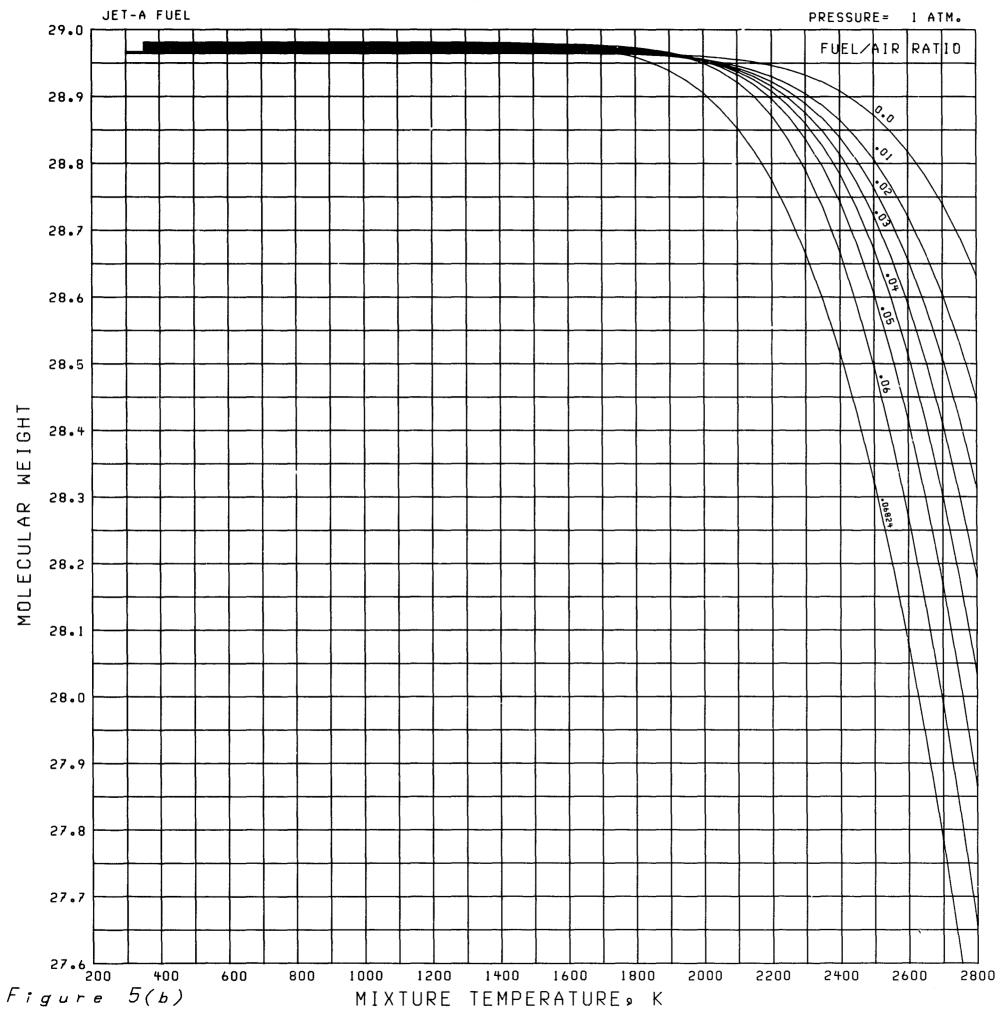


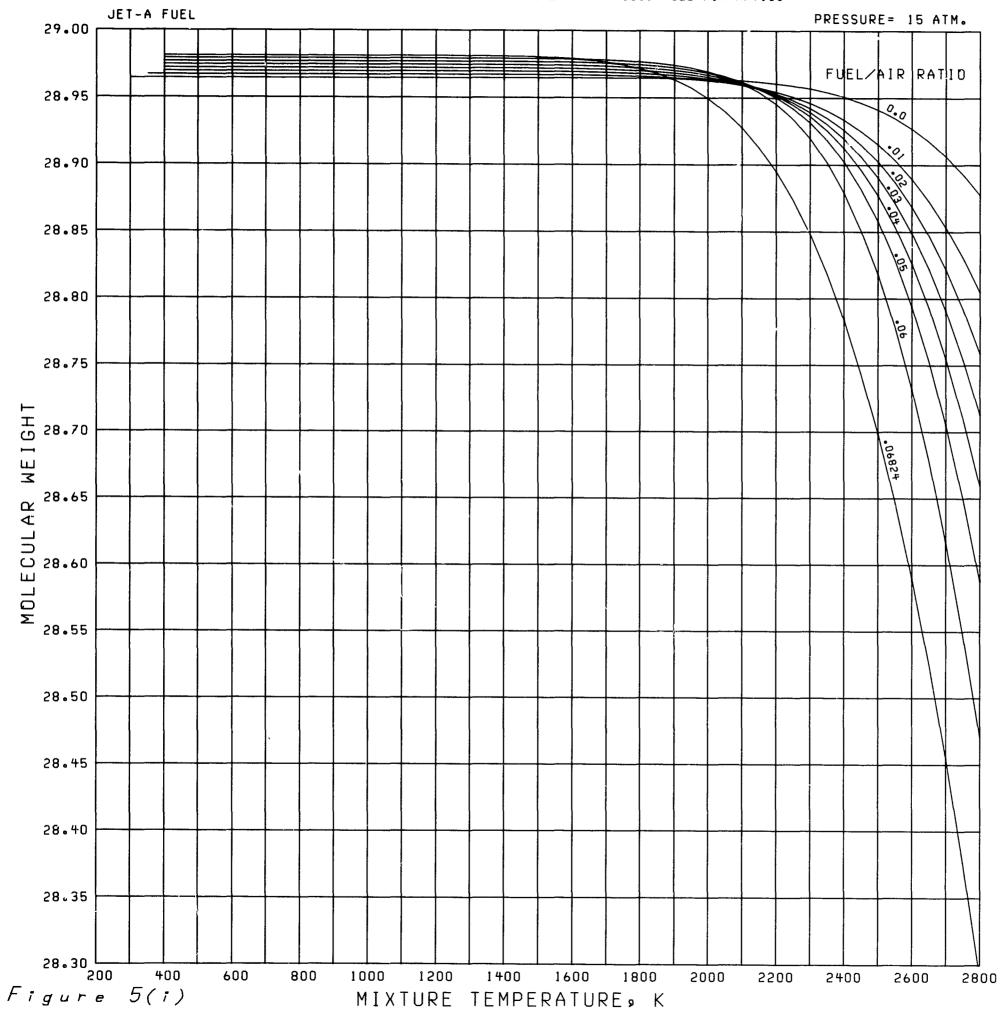


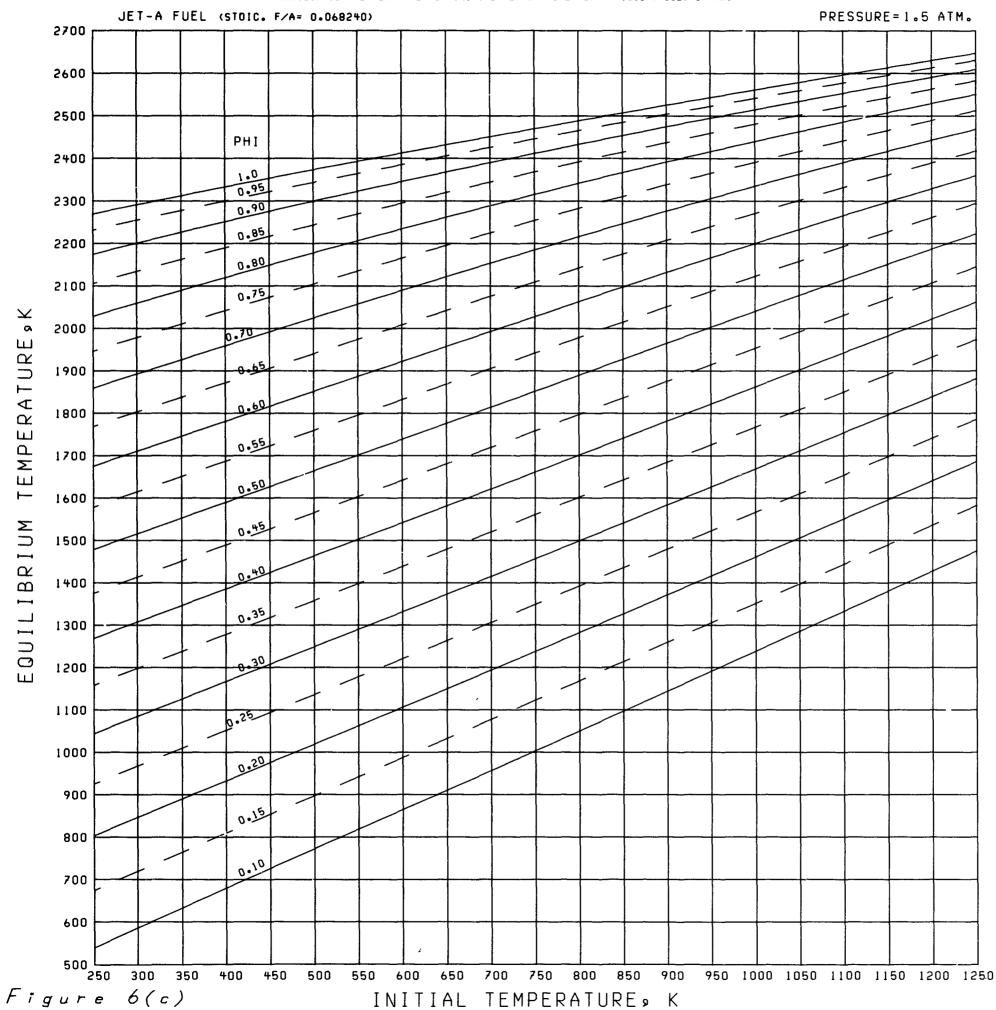


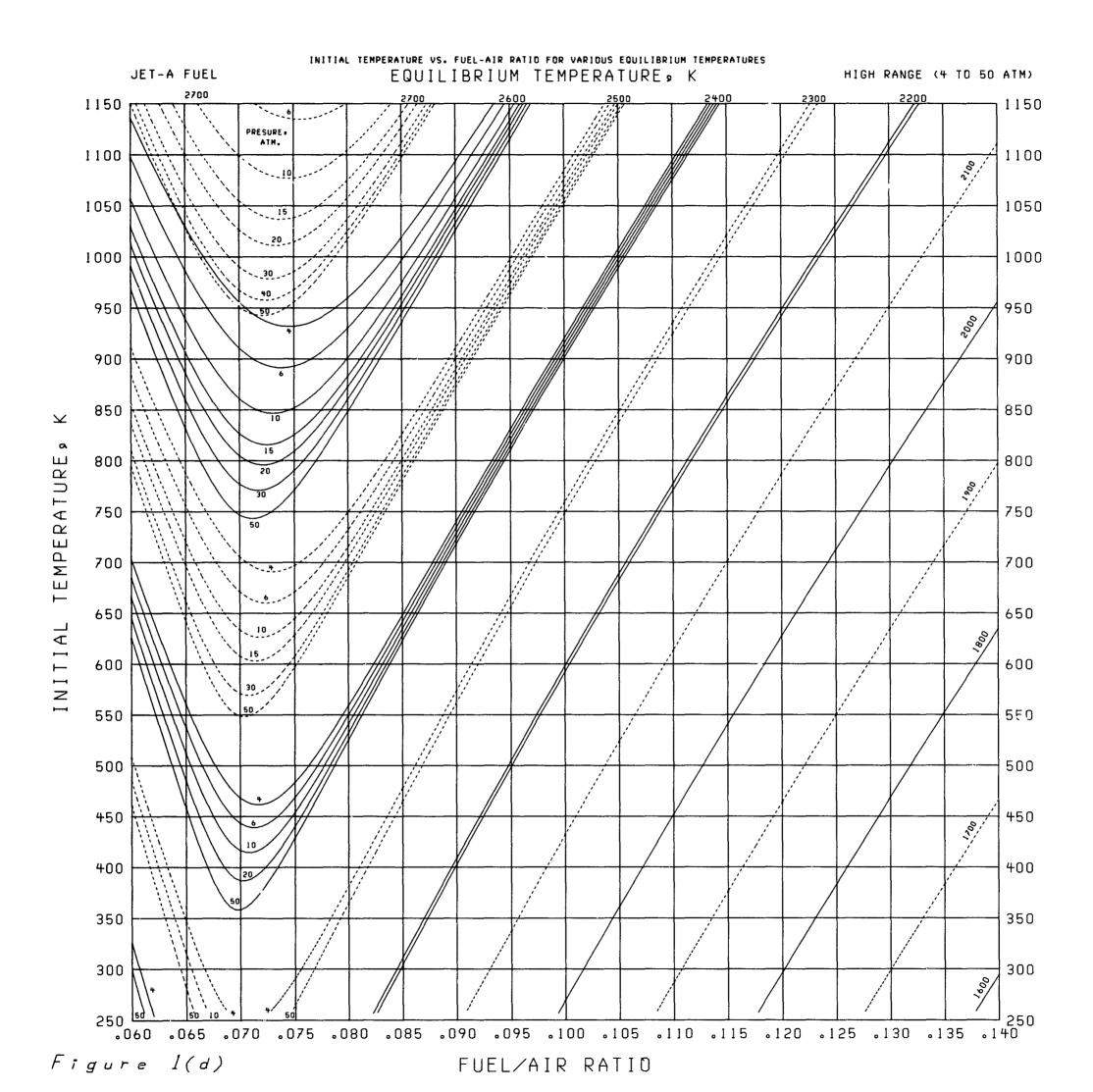


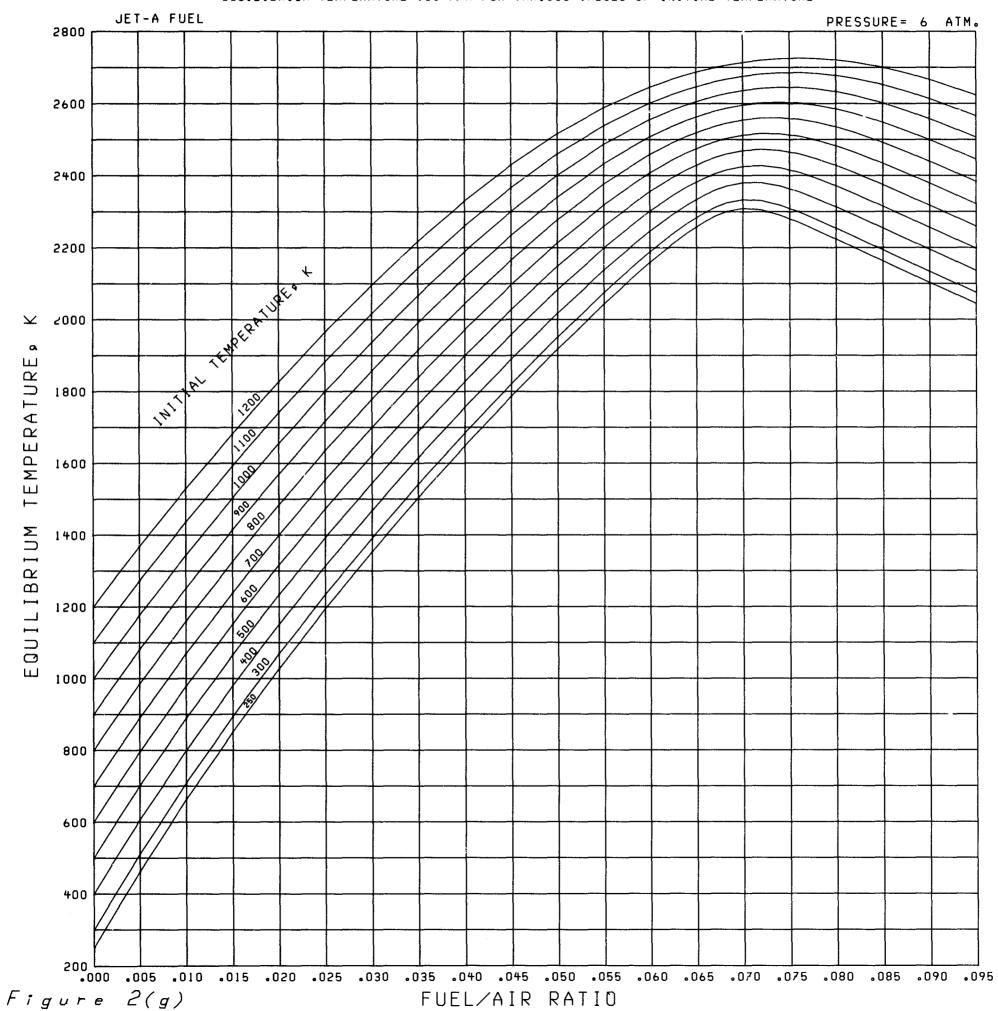




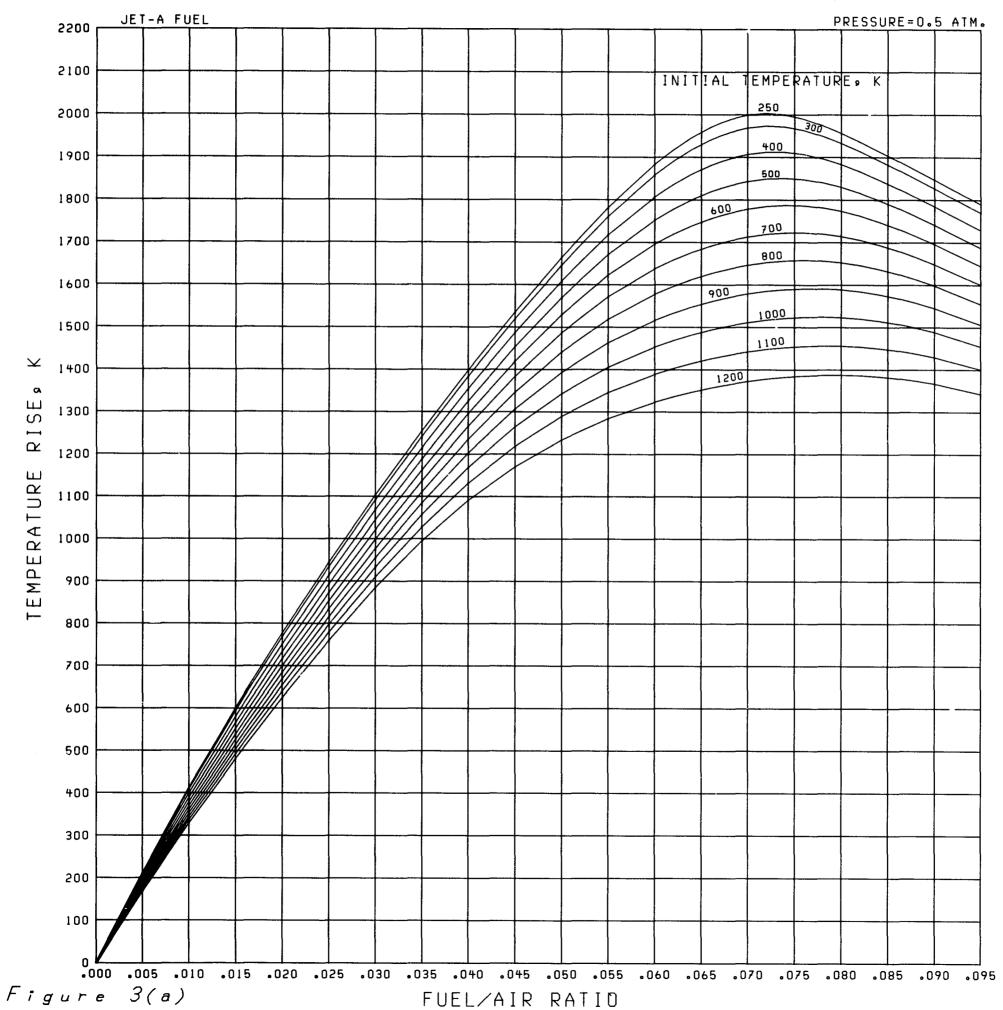


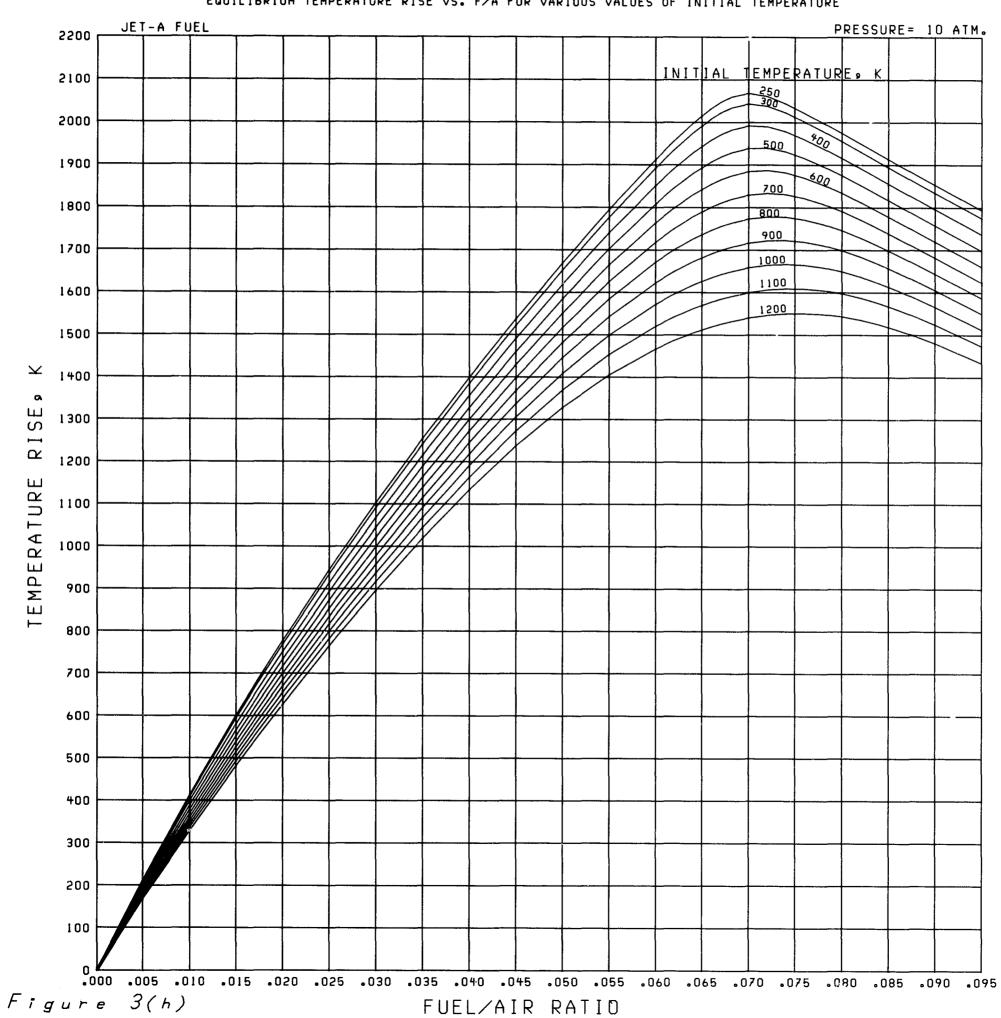


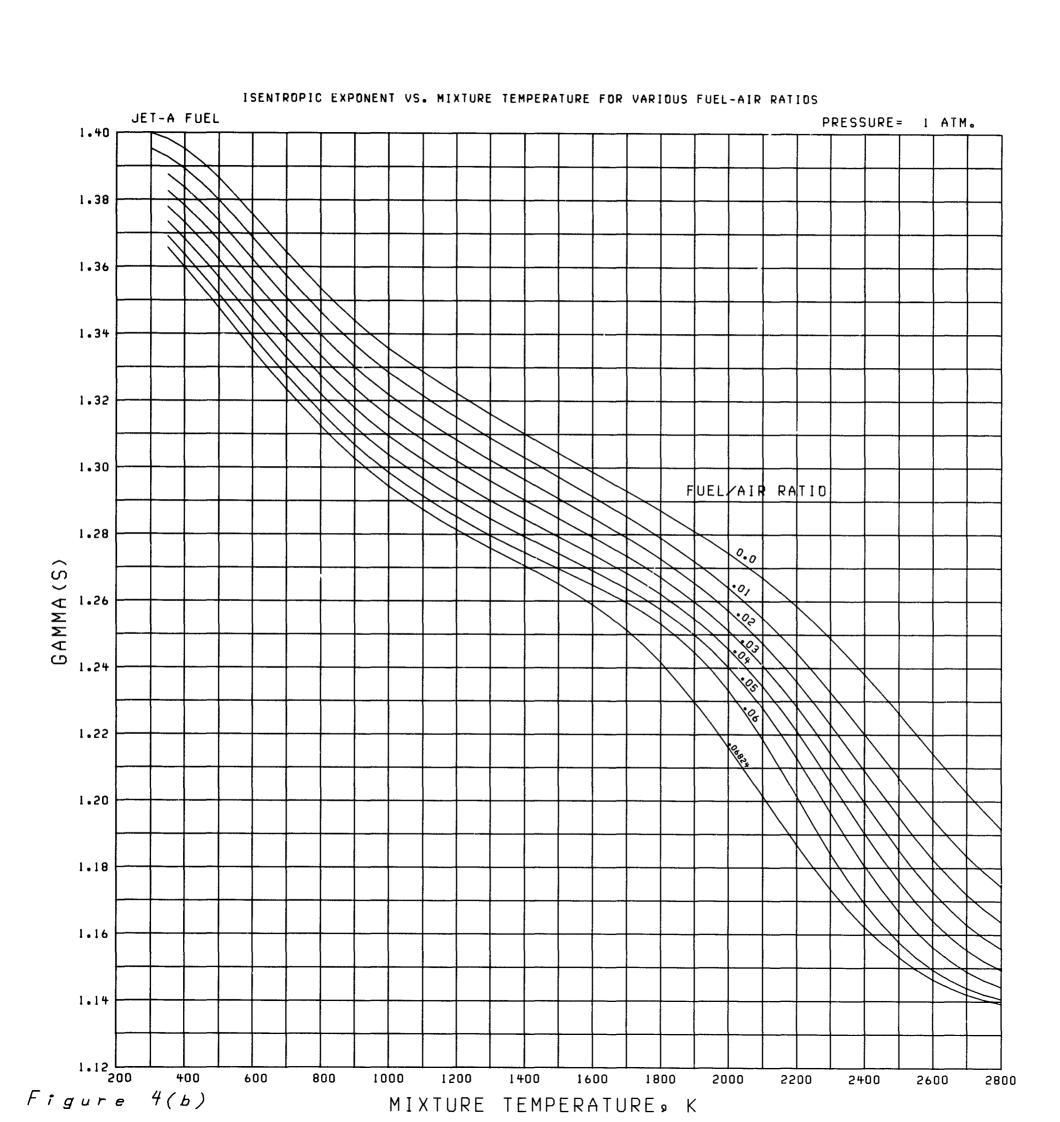


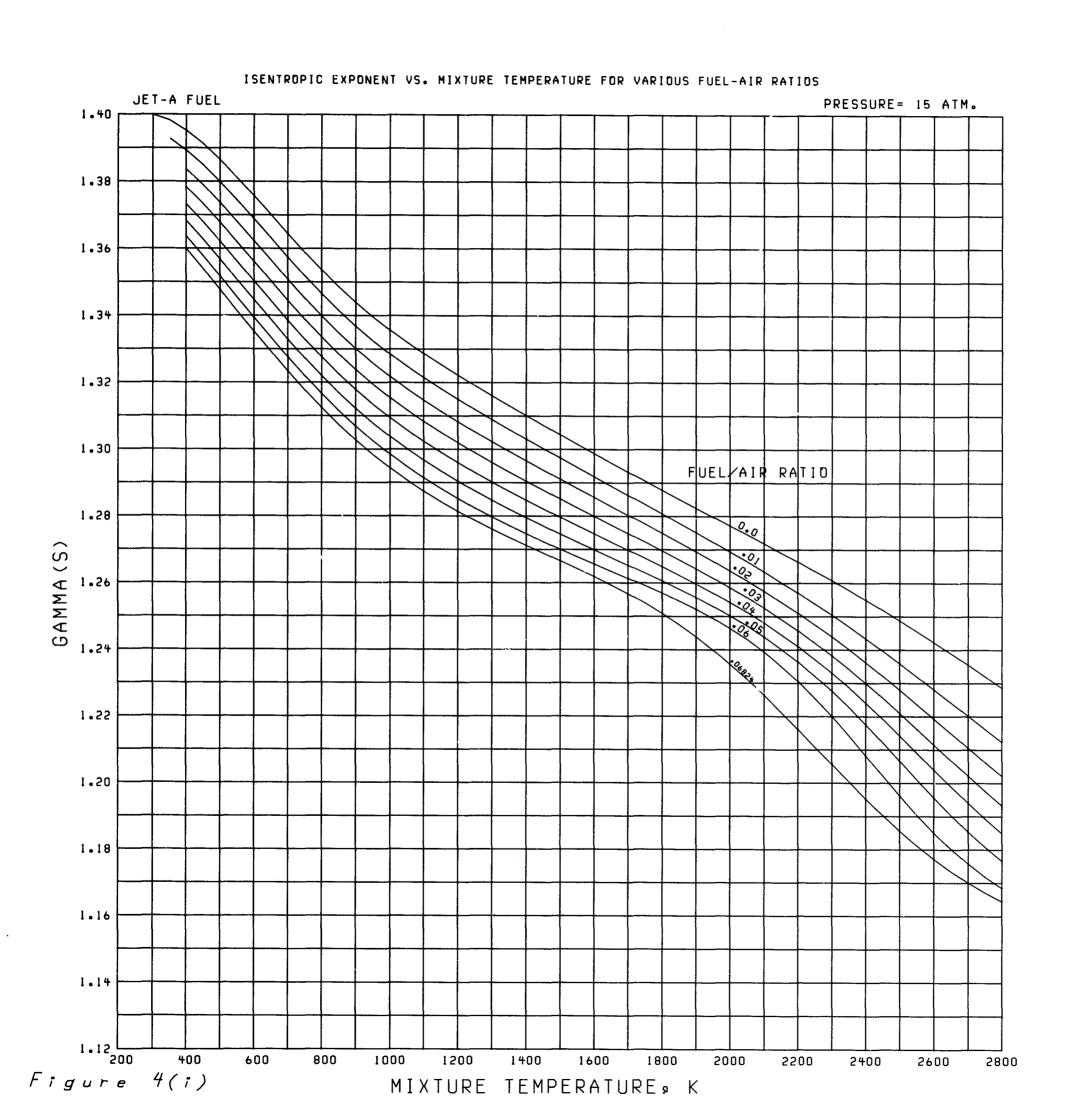


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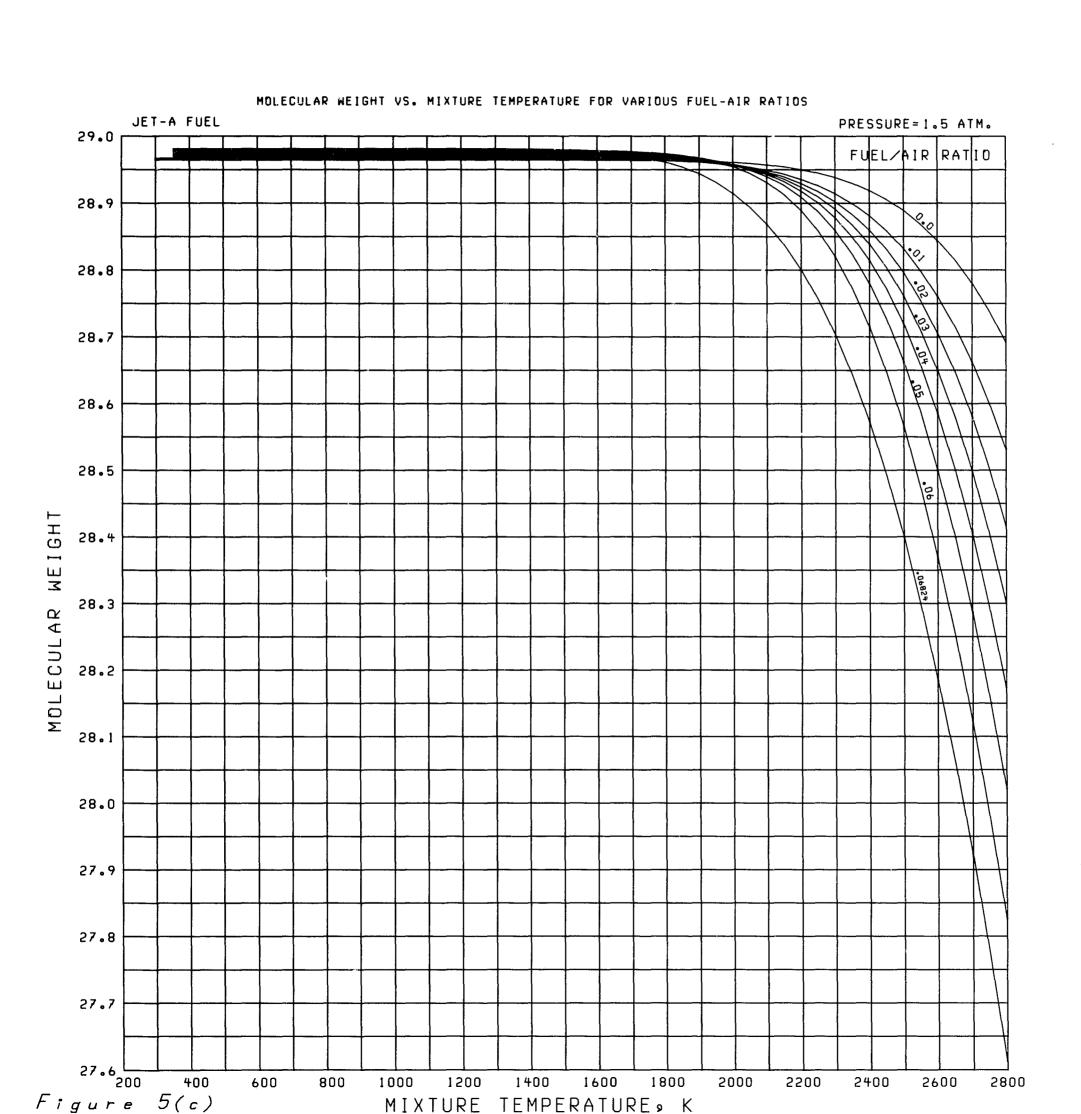


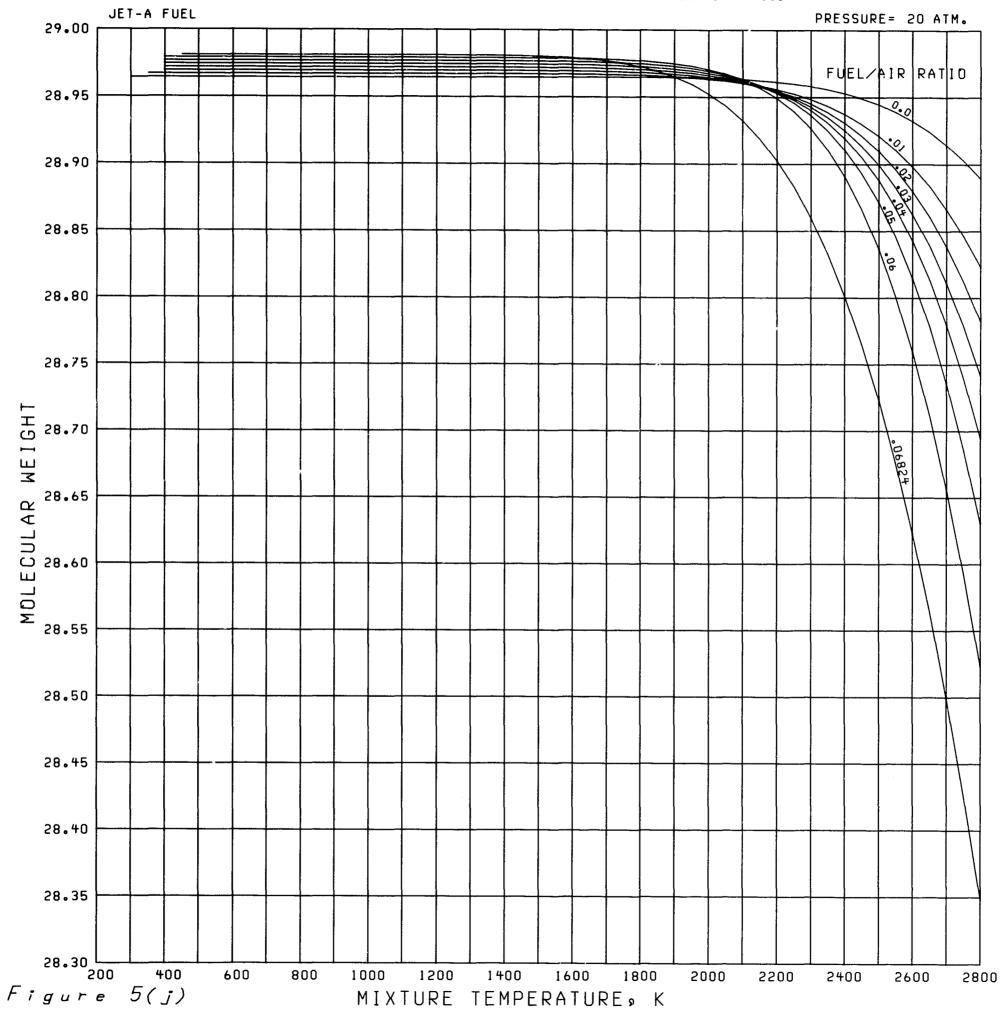


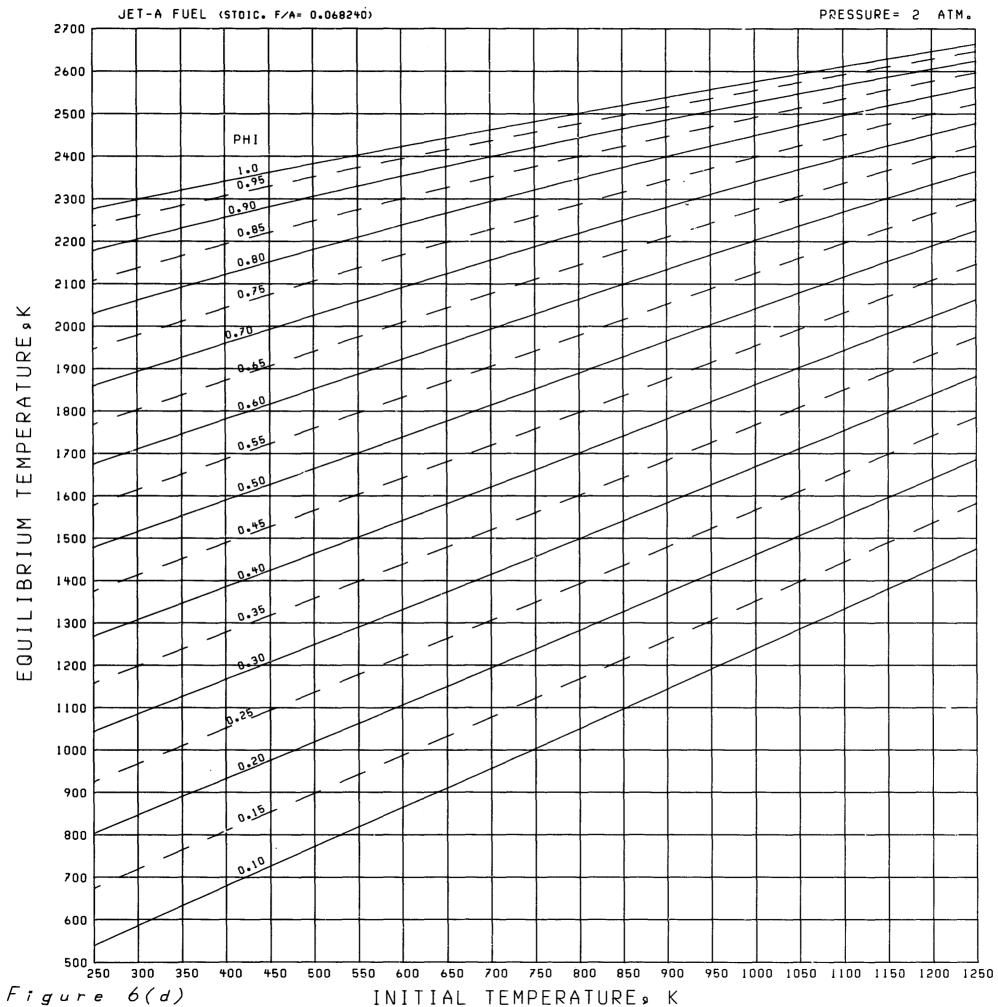


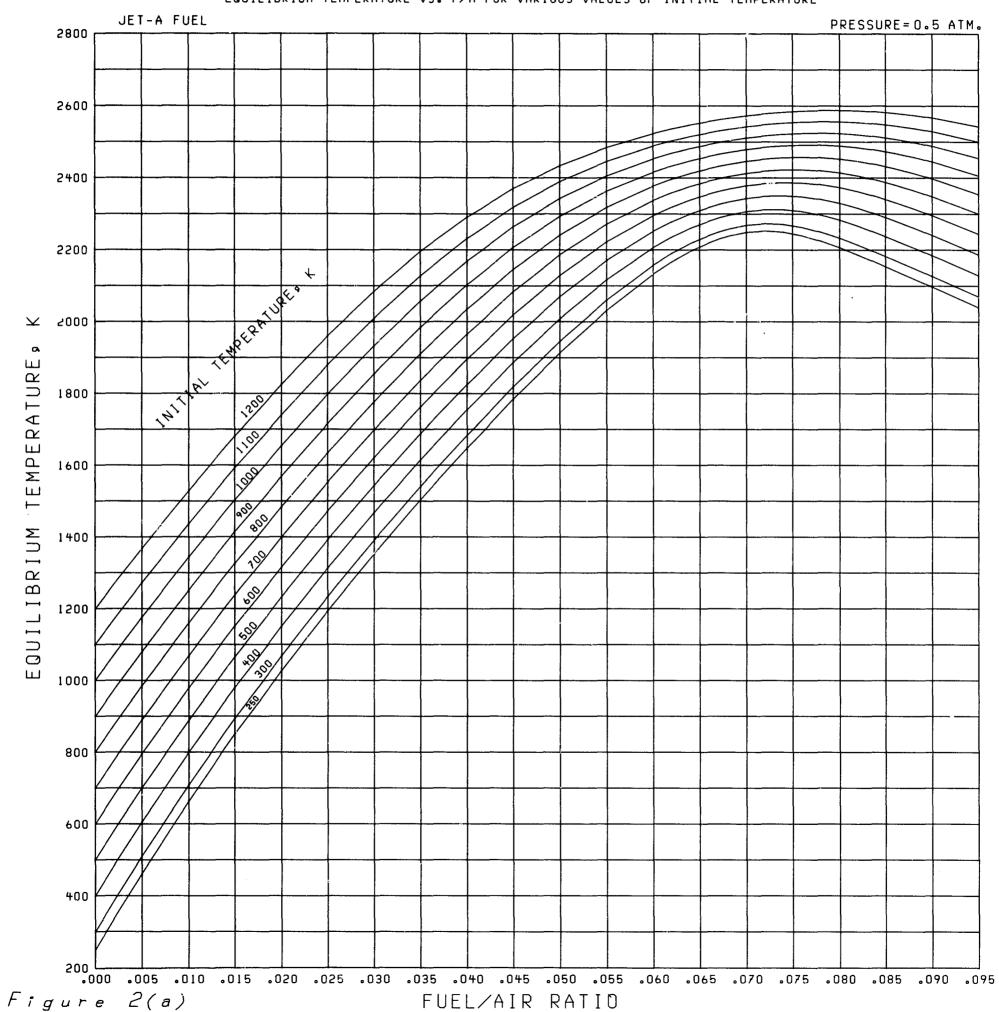


MIXTURE TEMPERATURE, K

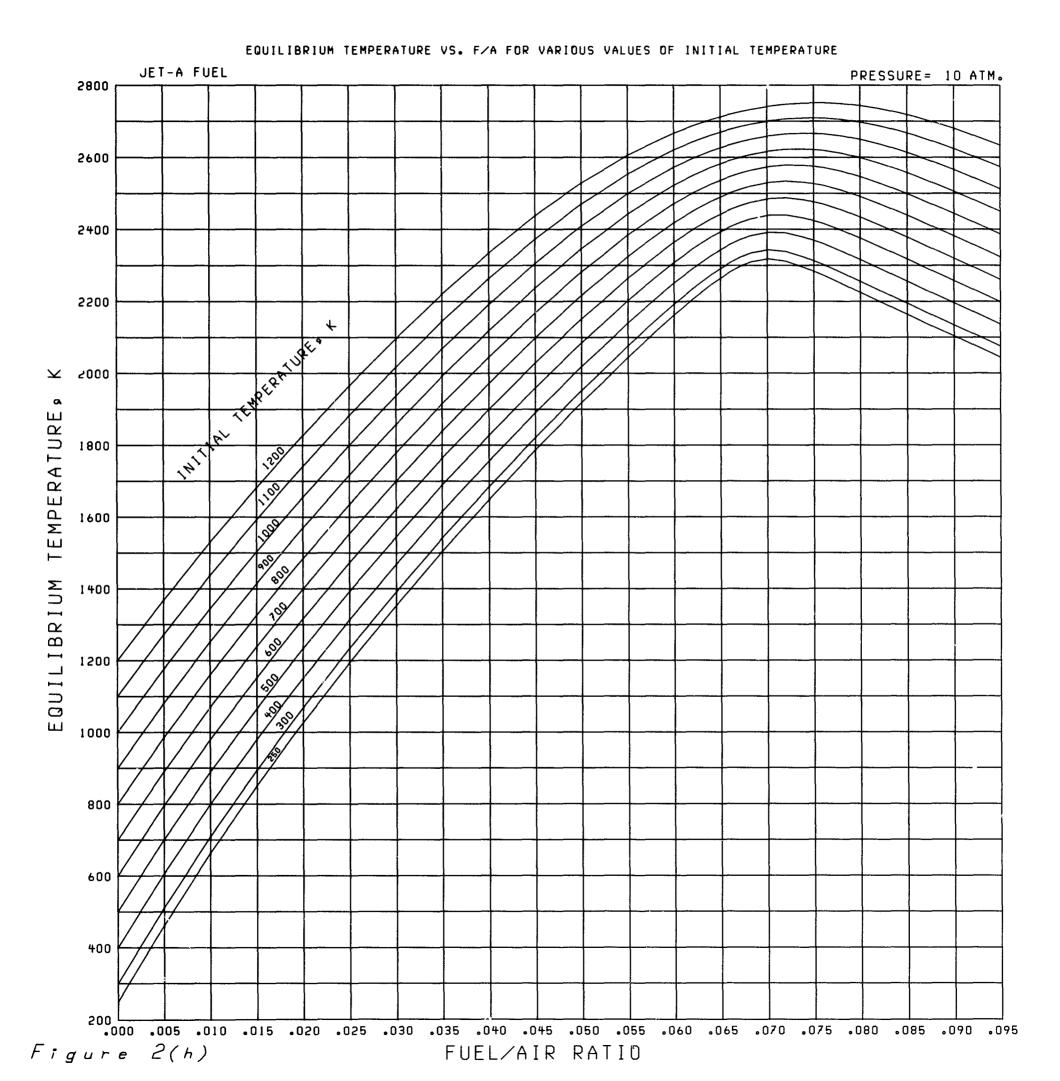


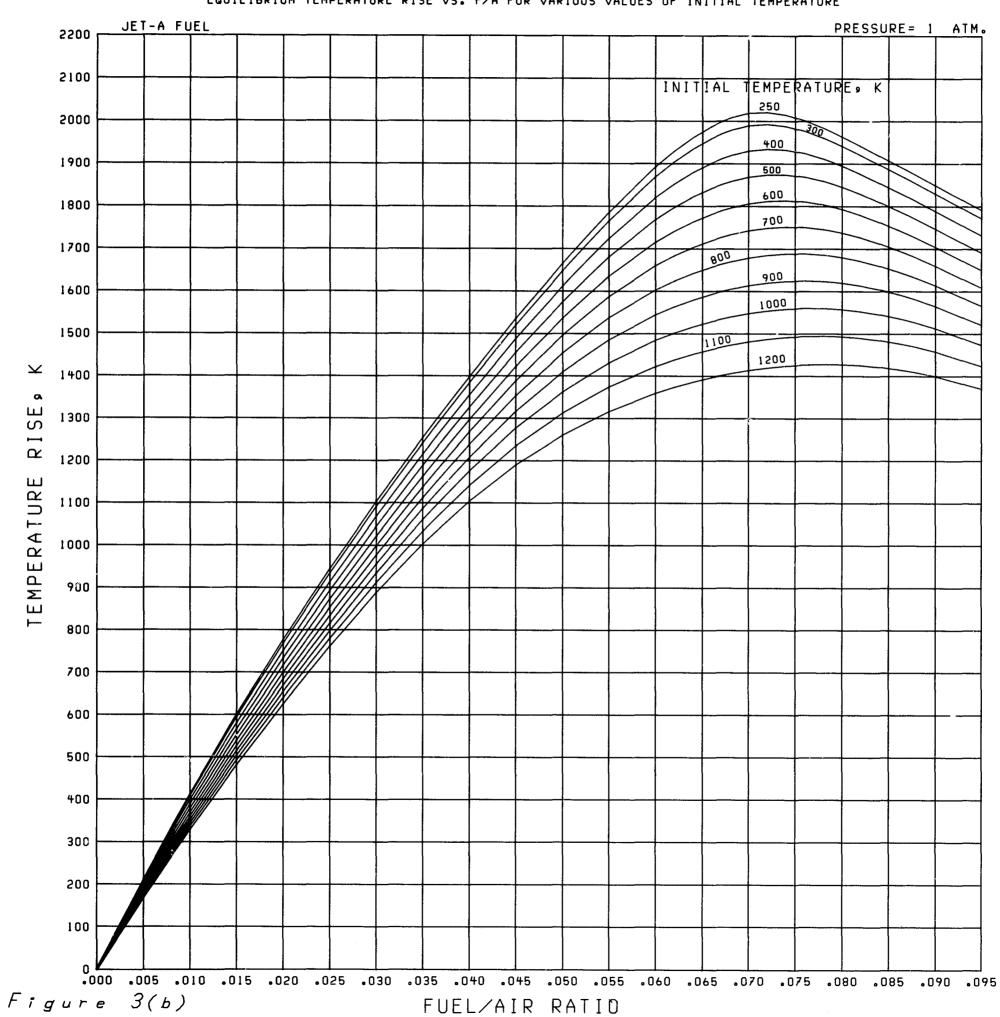


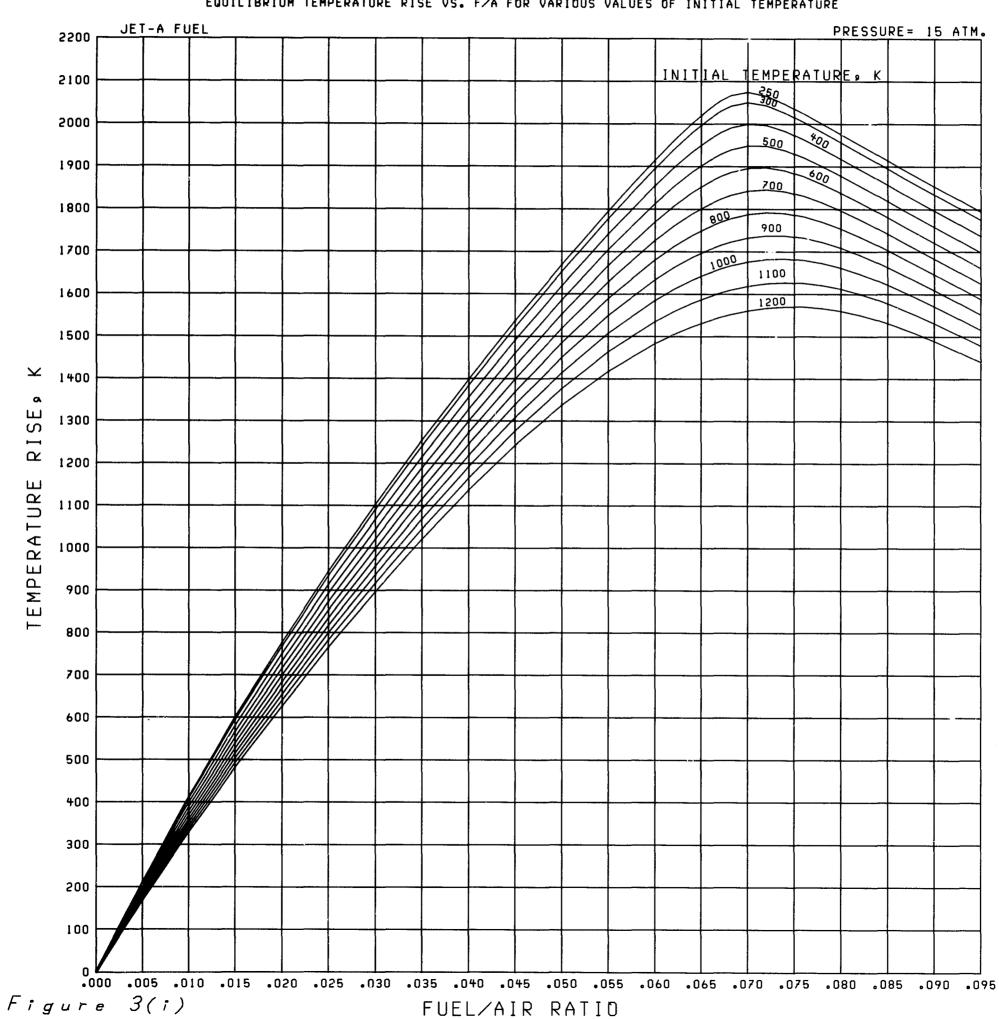


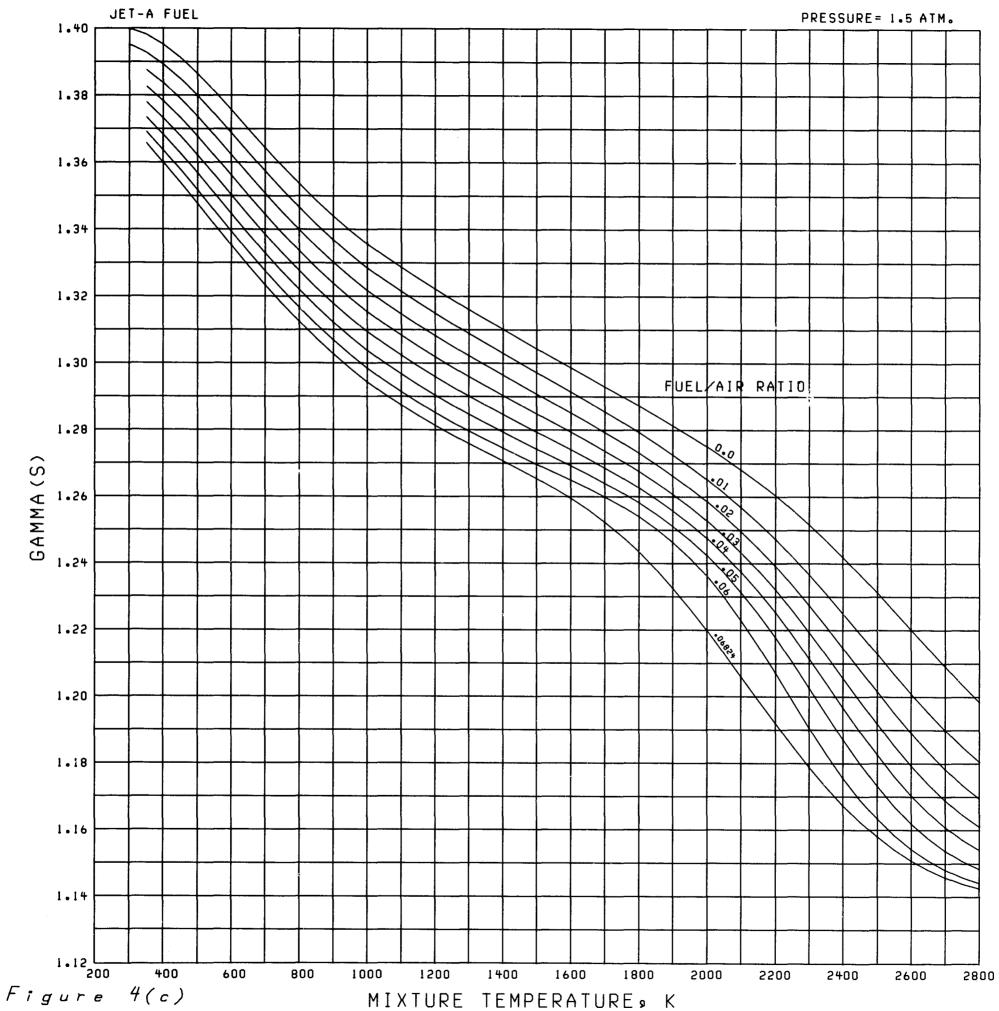


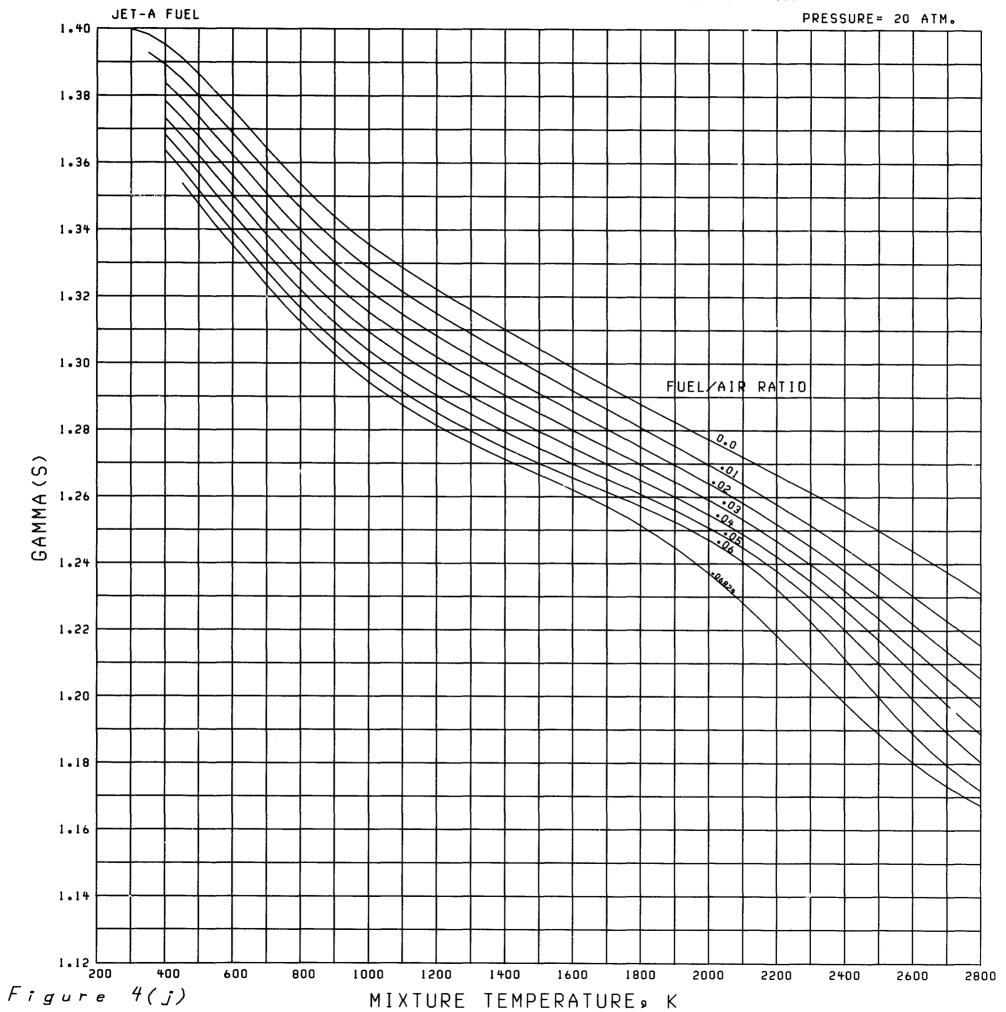
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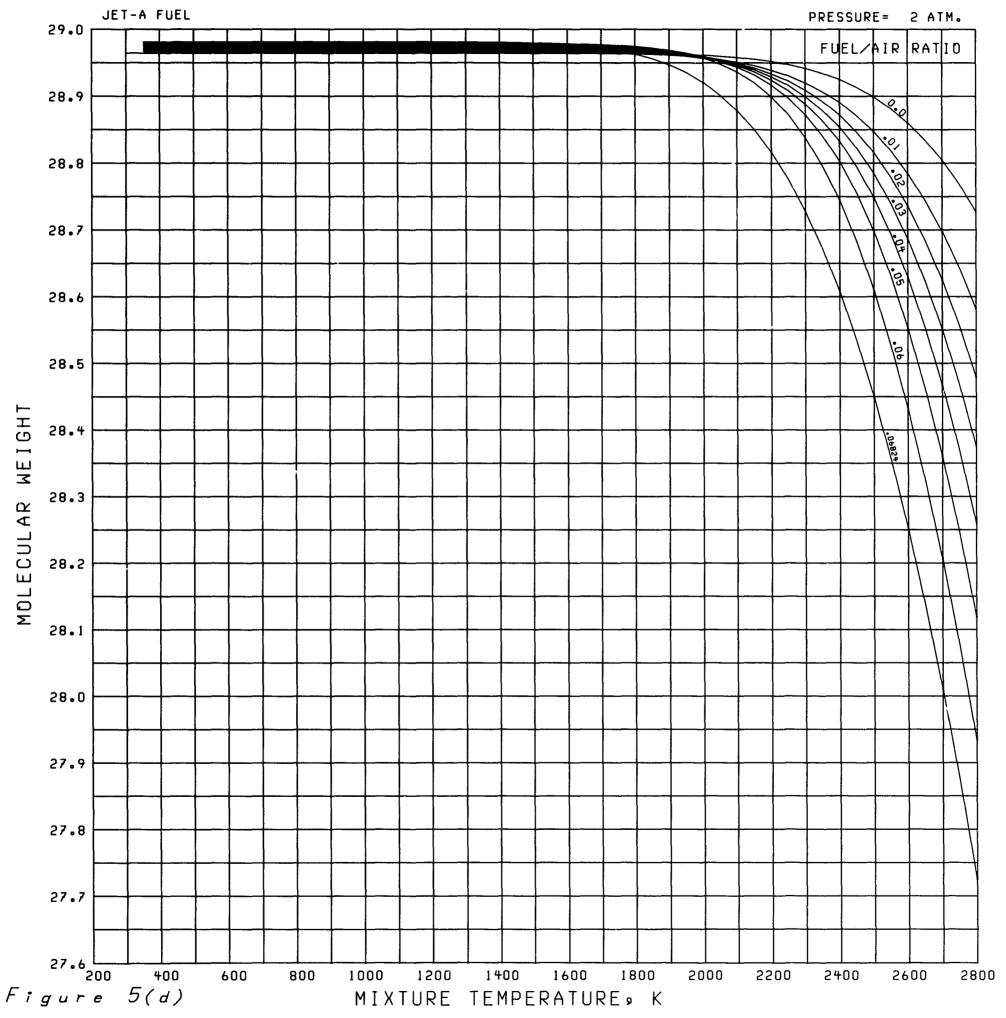


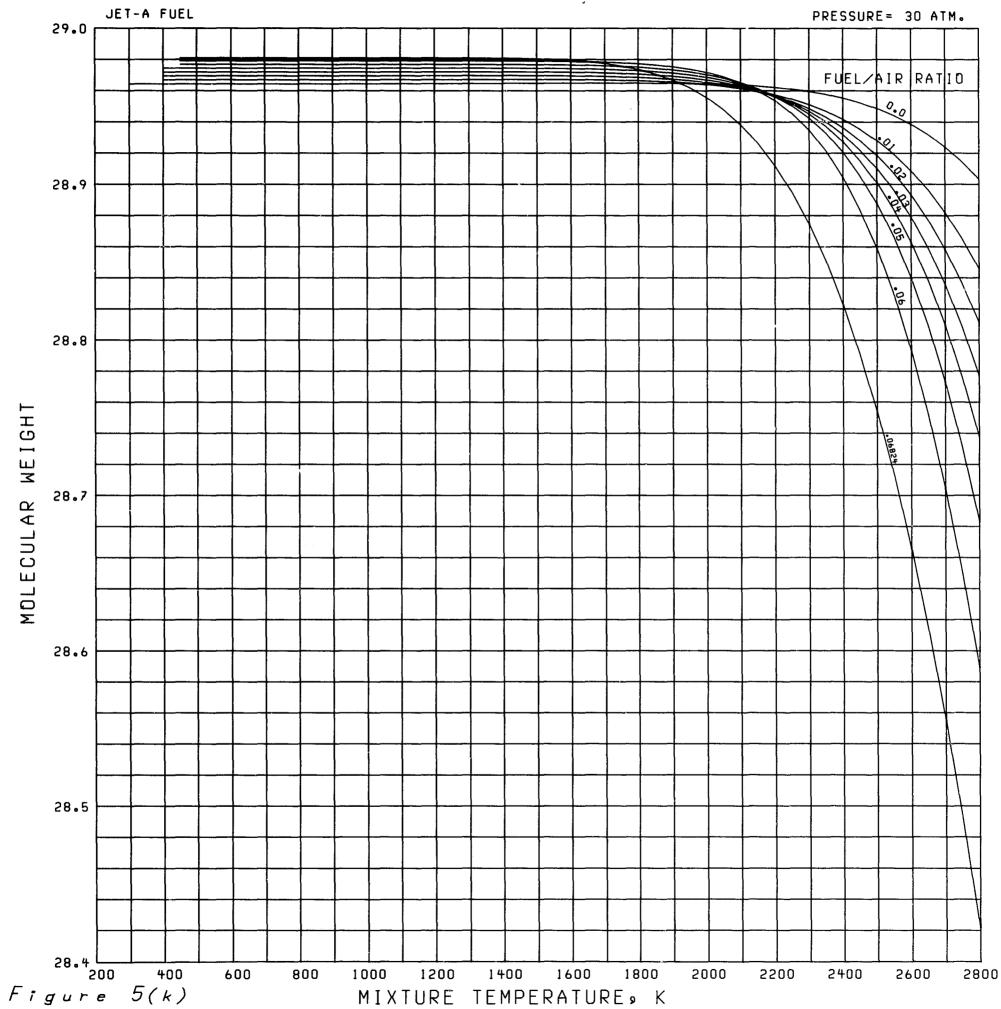


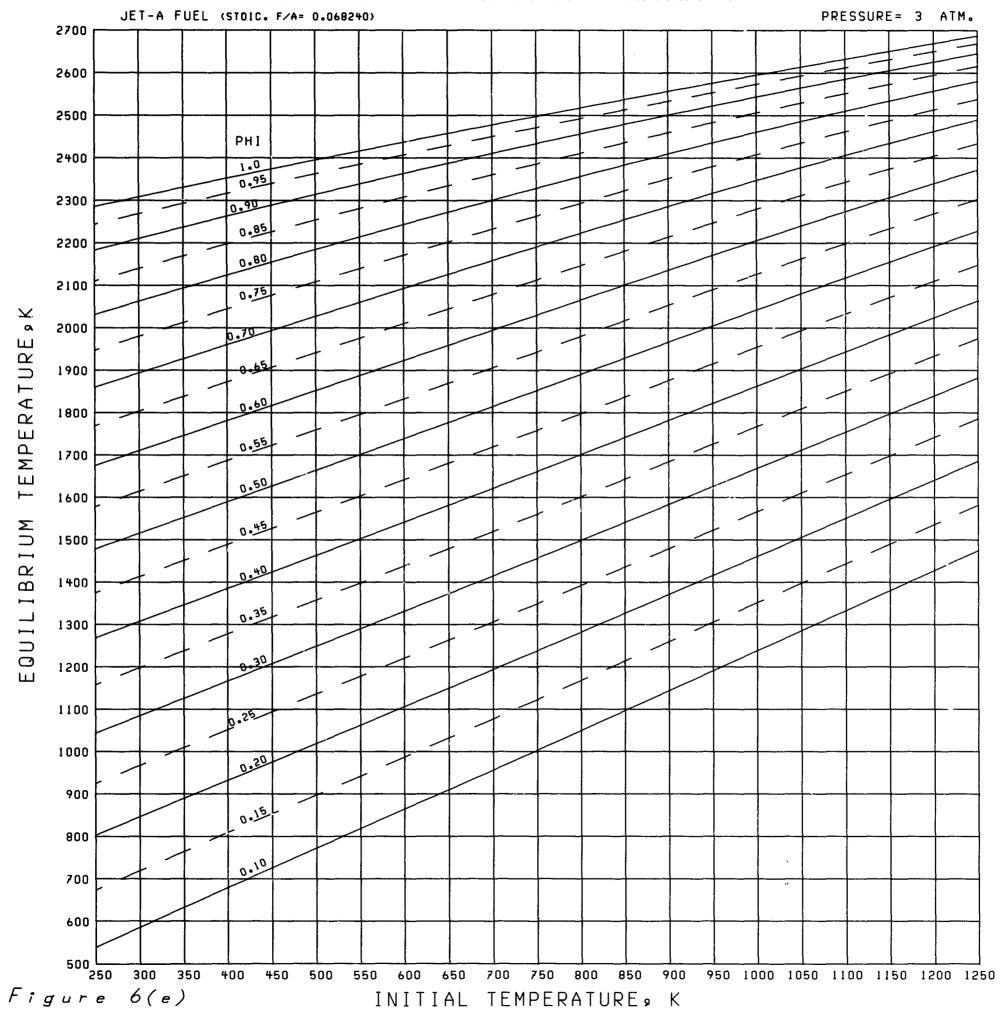


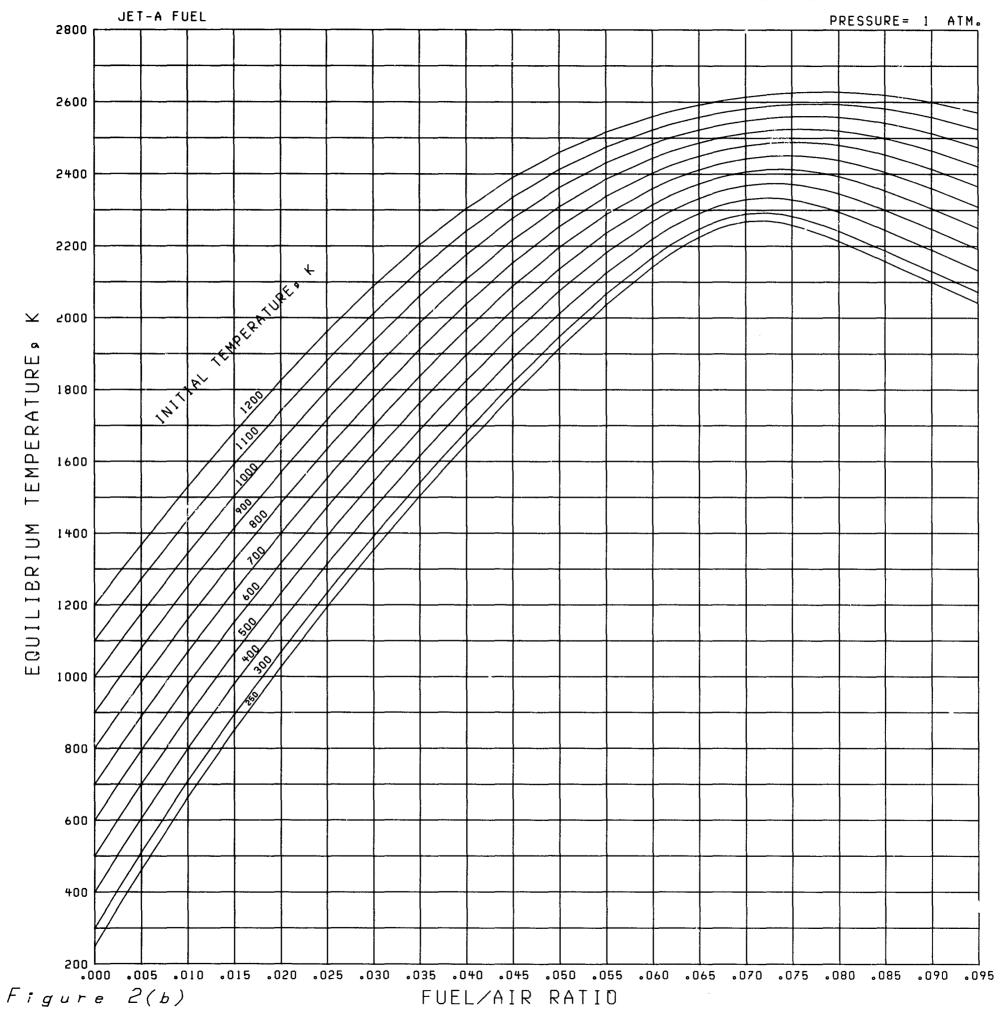


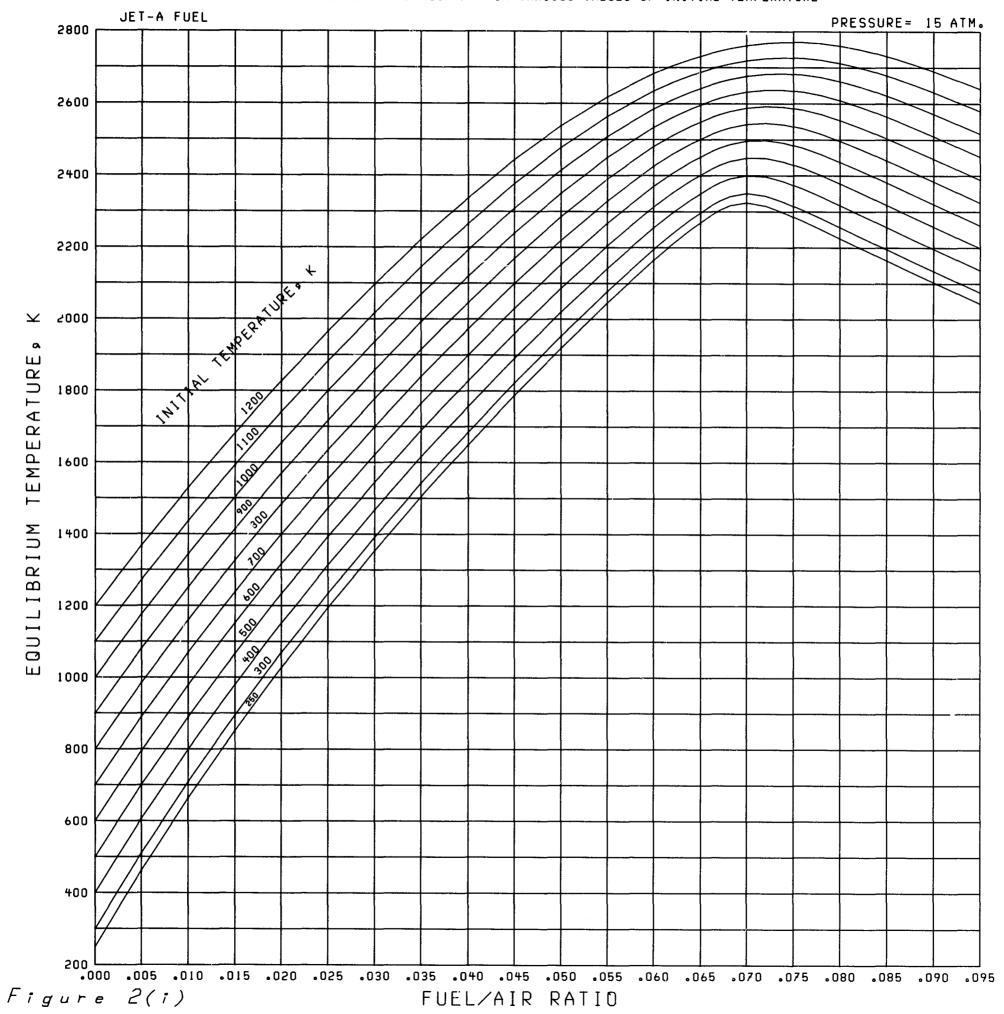


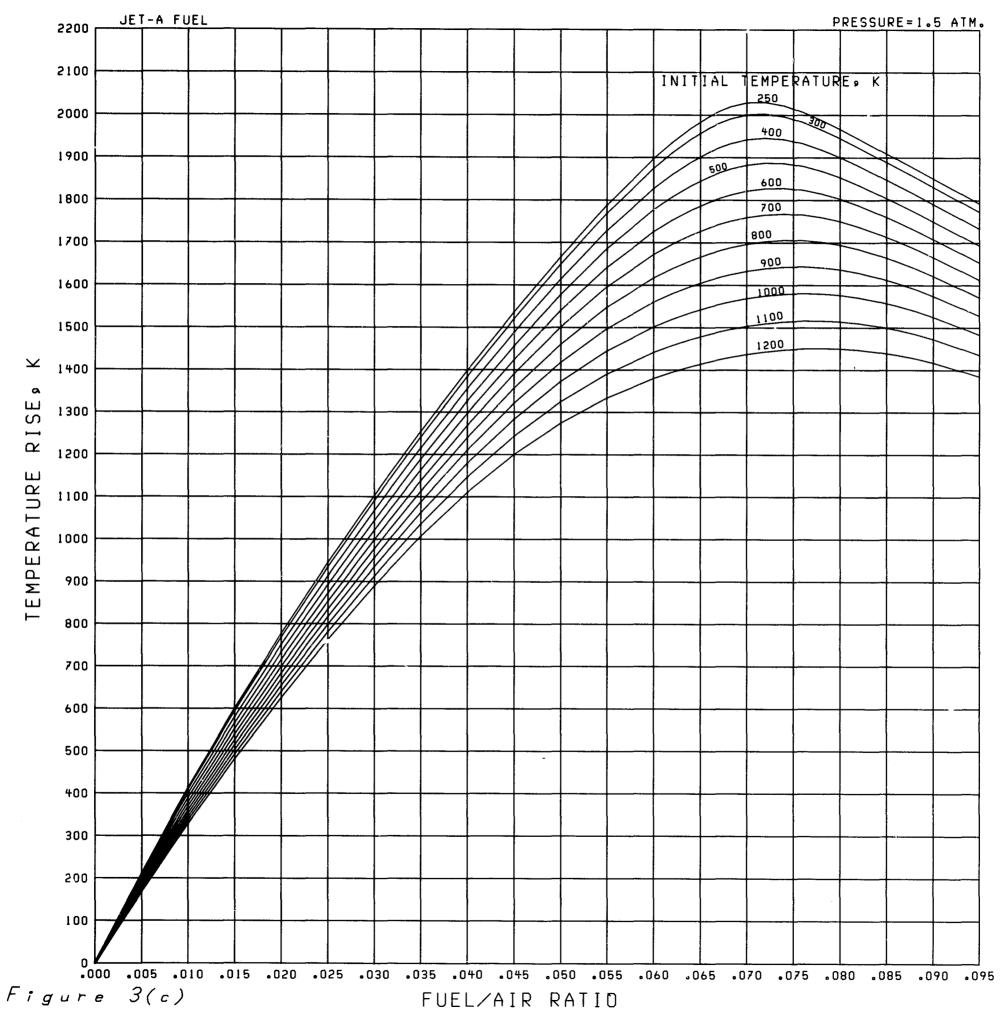


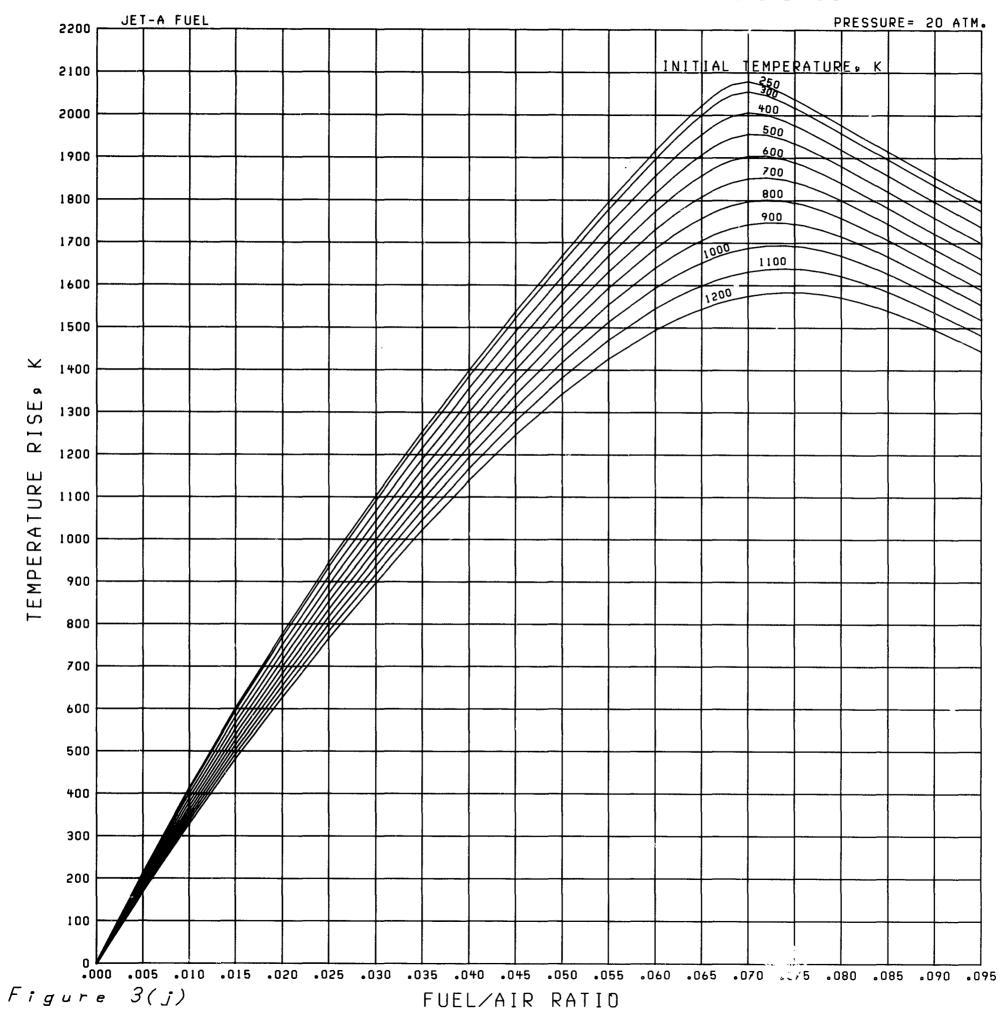


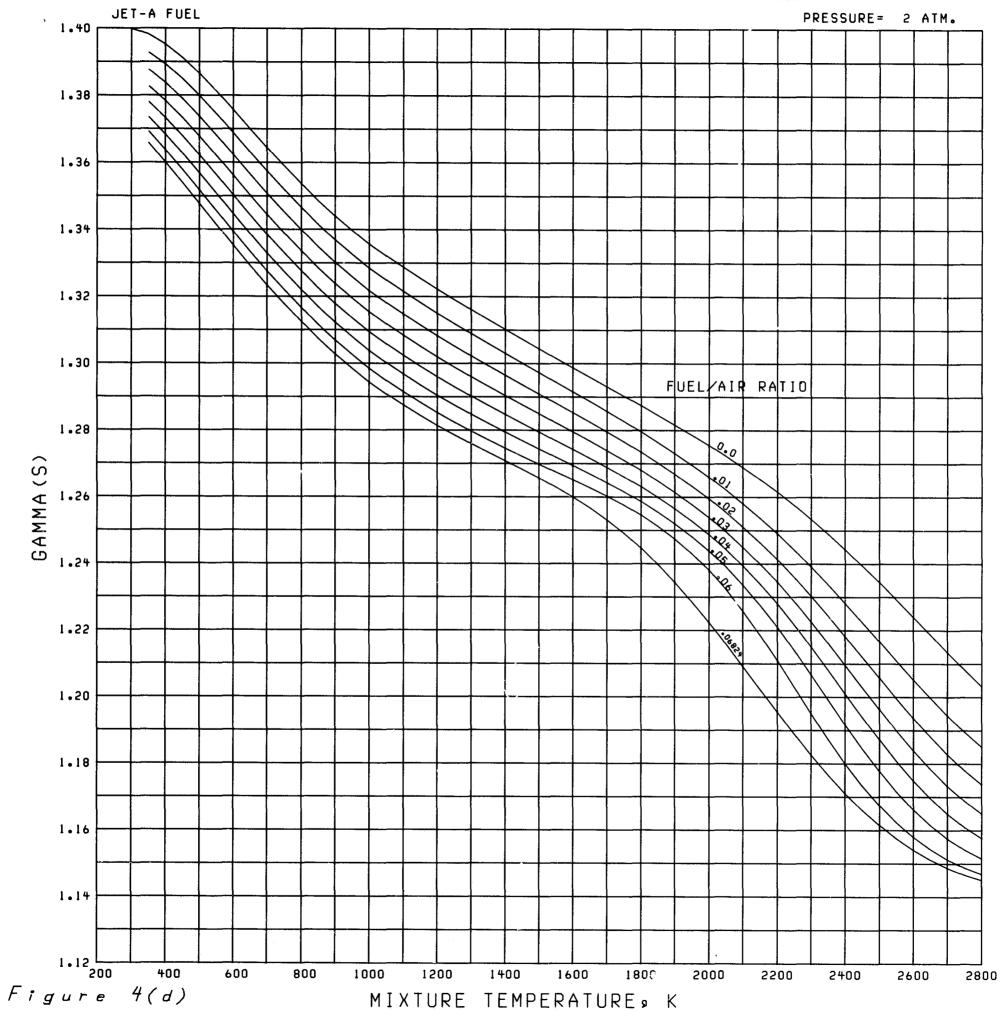


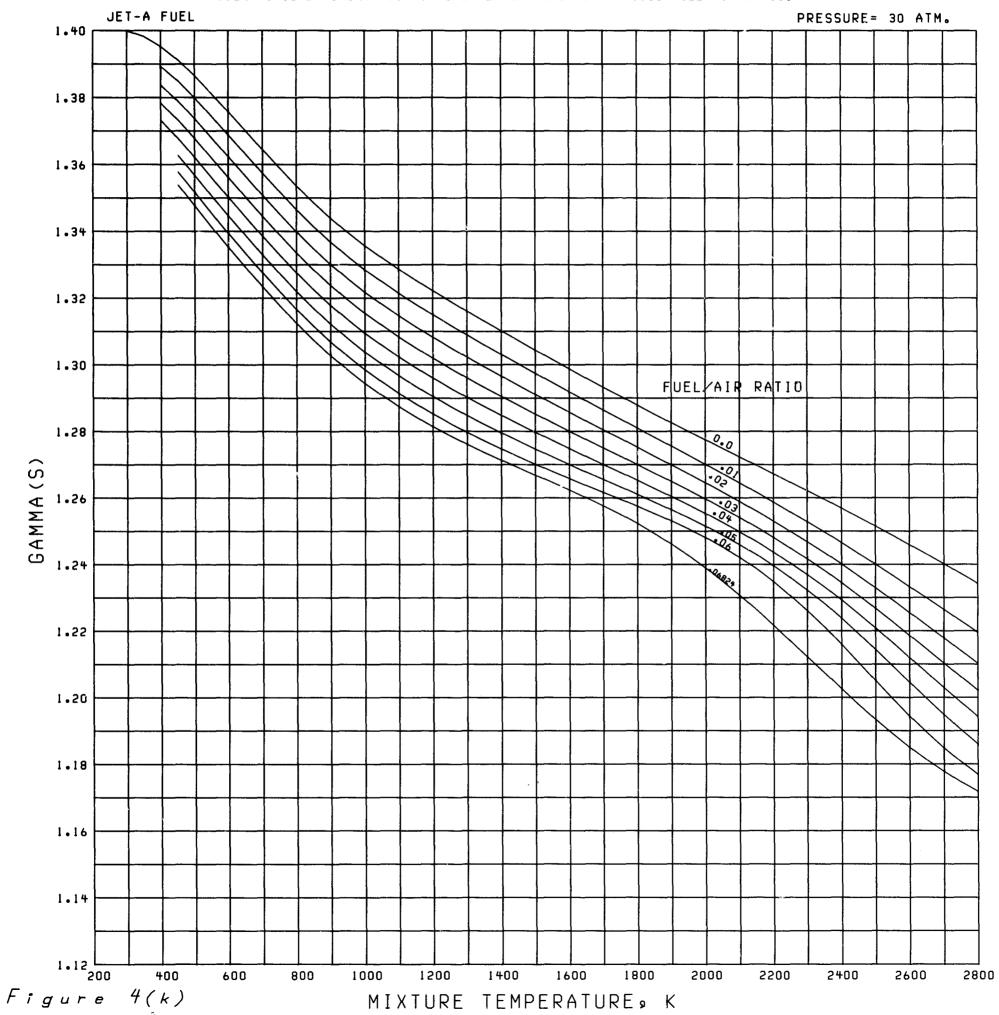




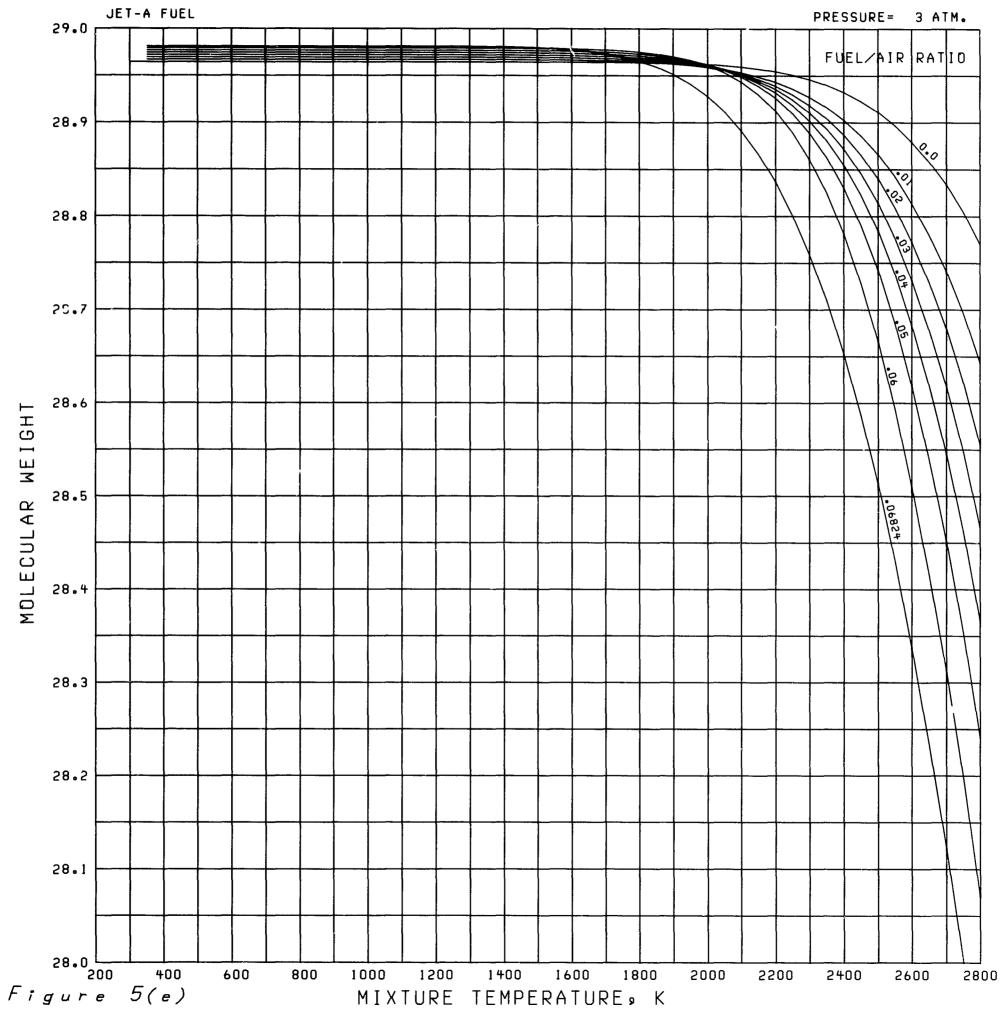




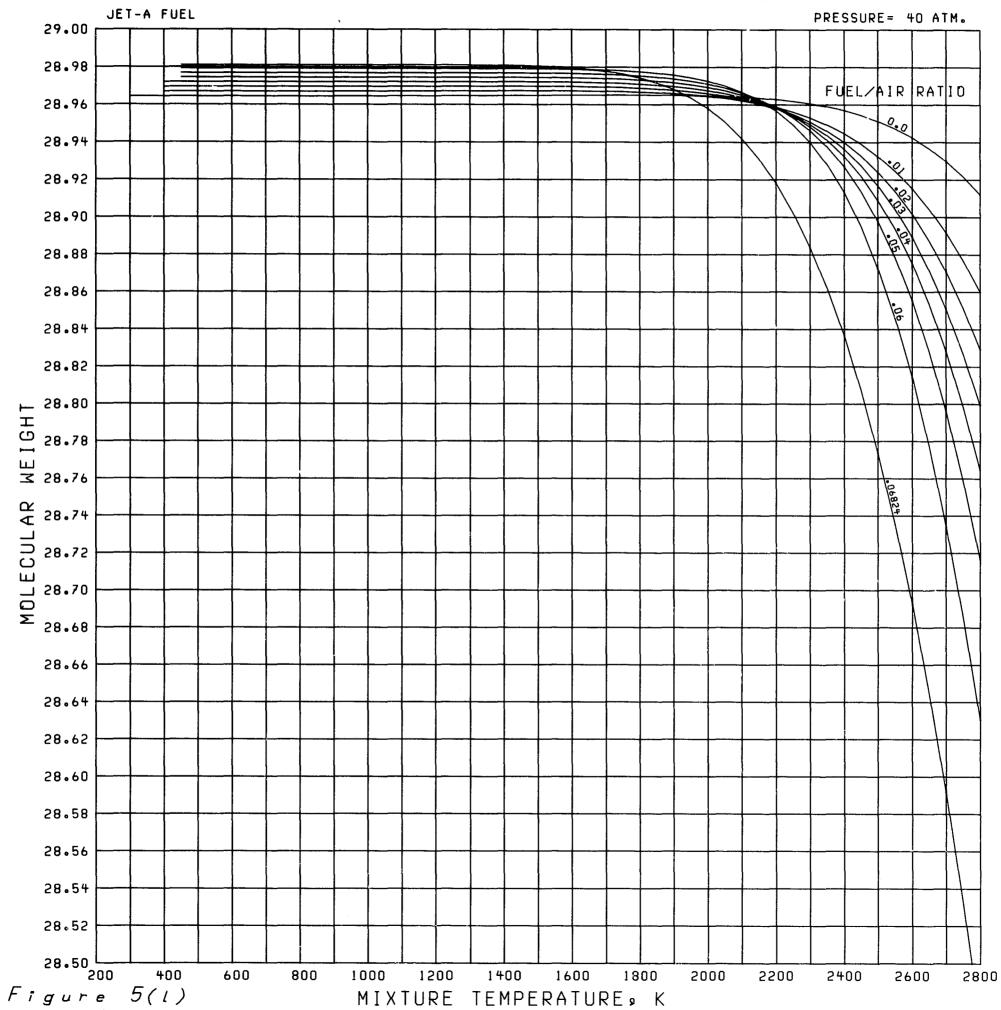


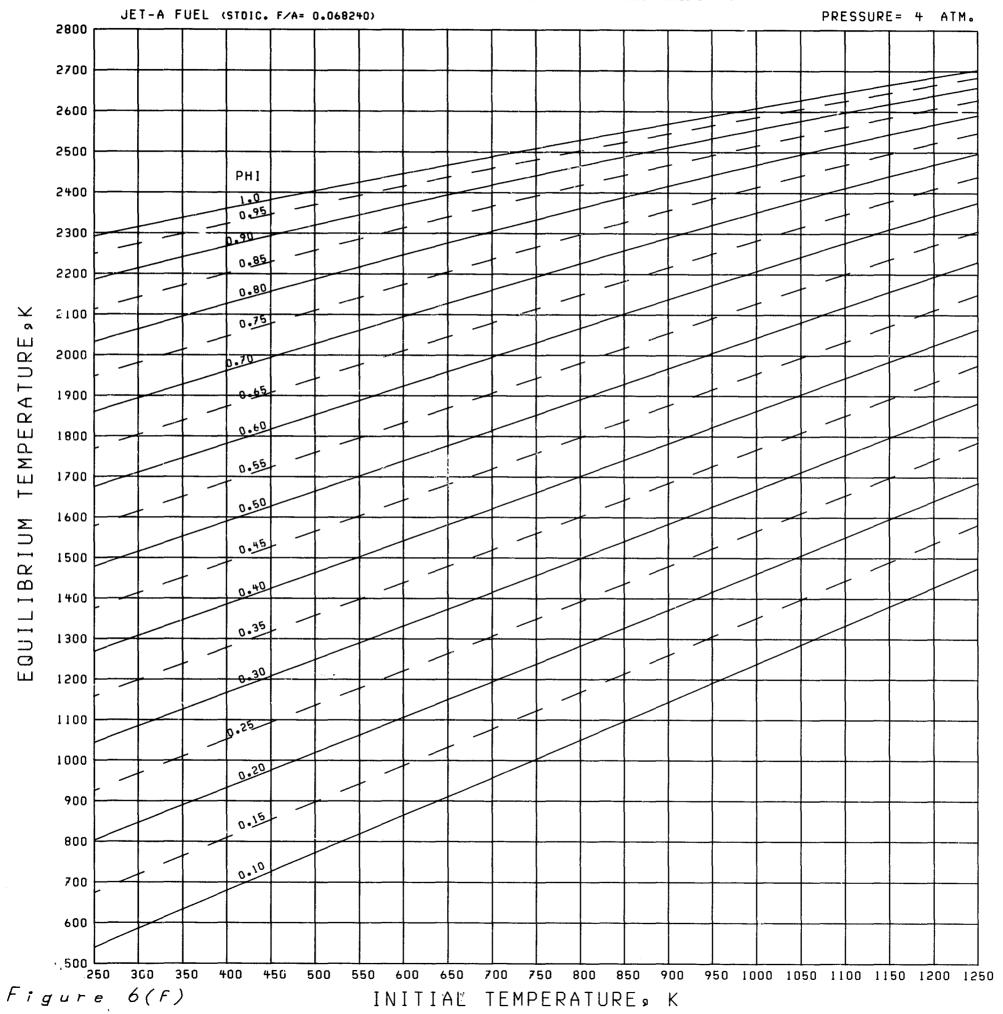


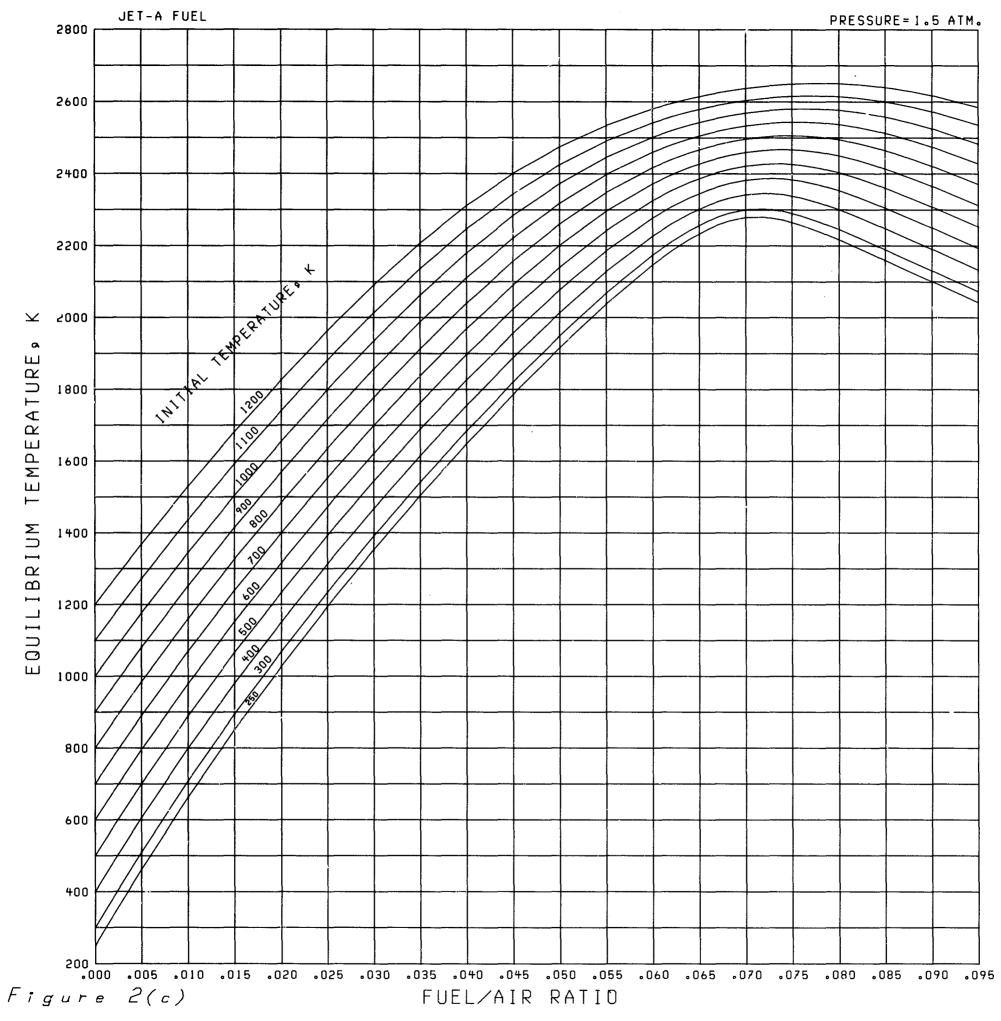


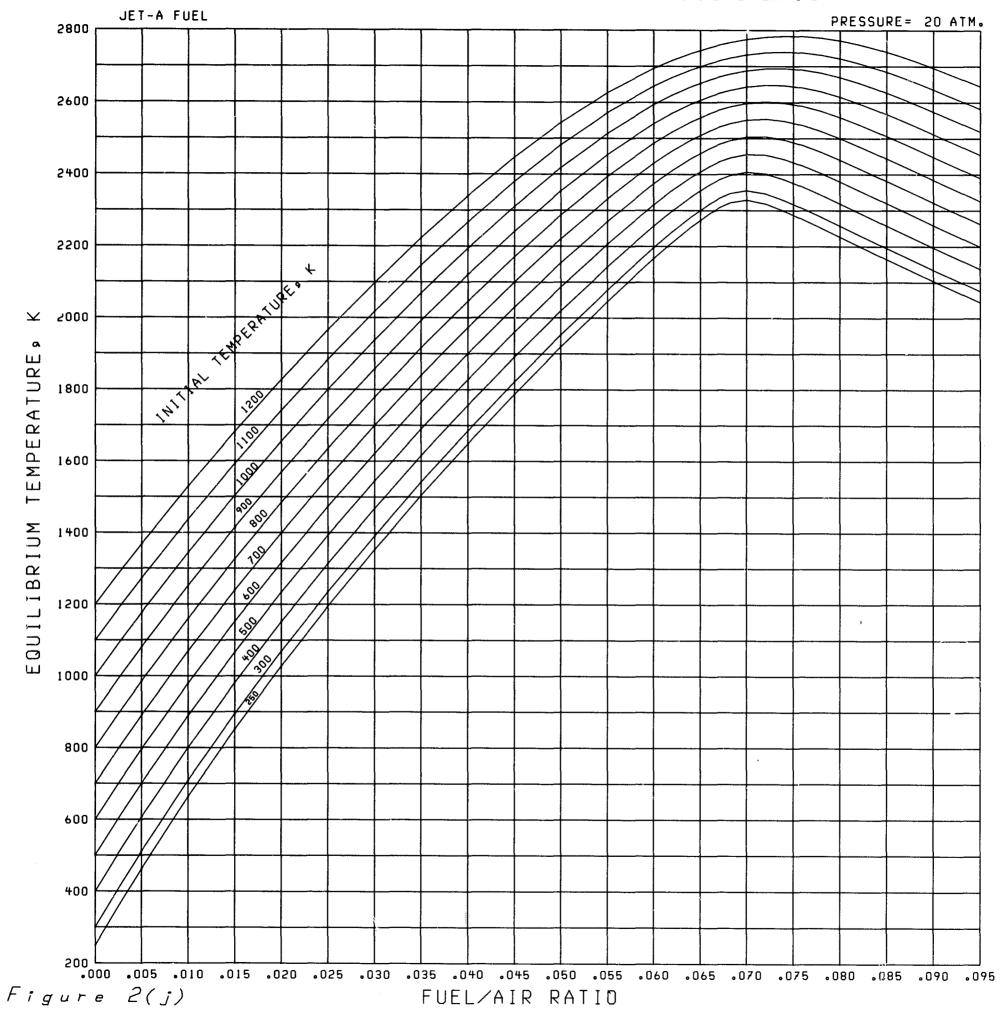


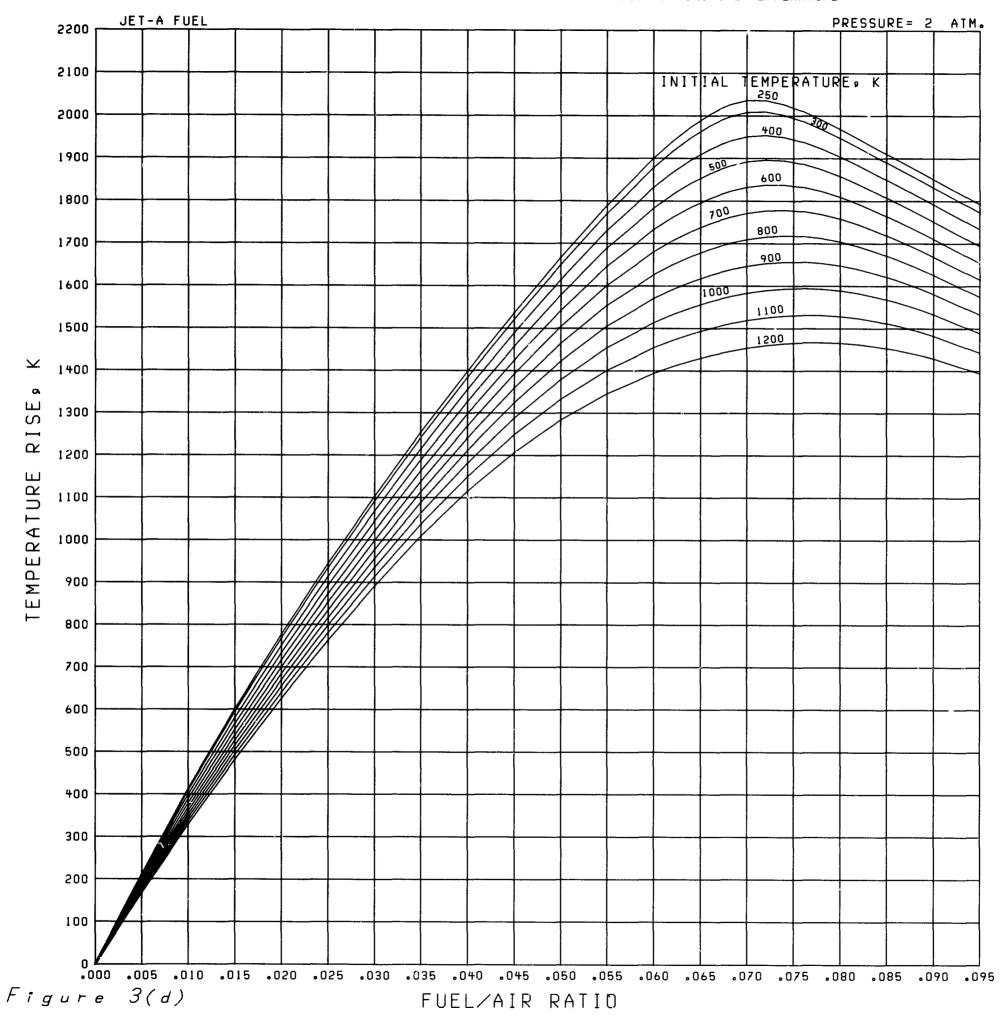


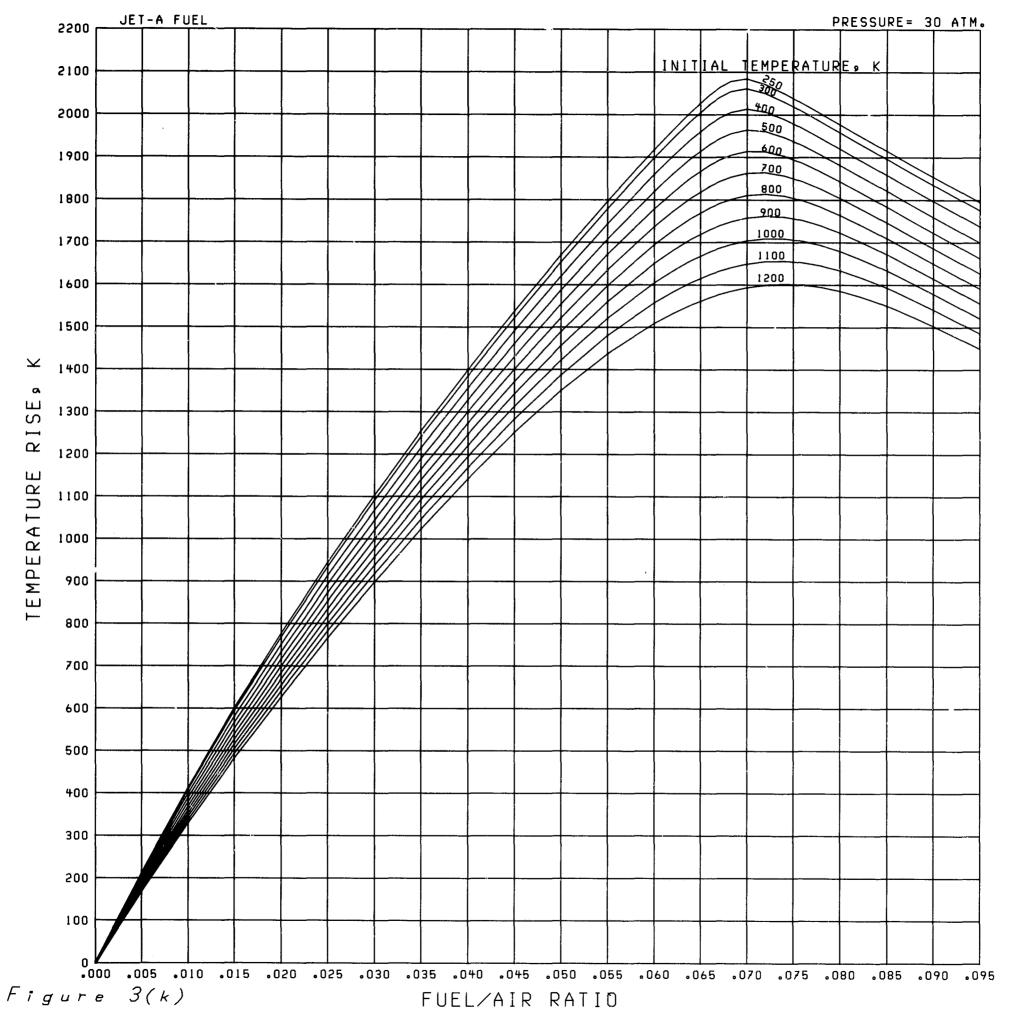


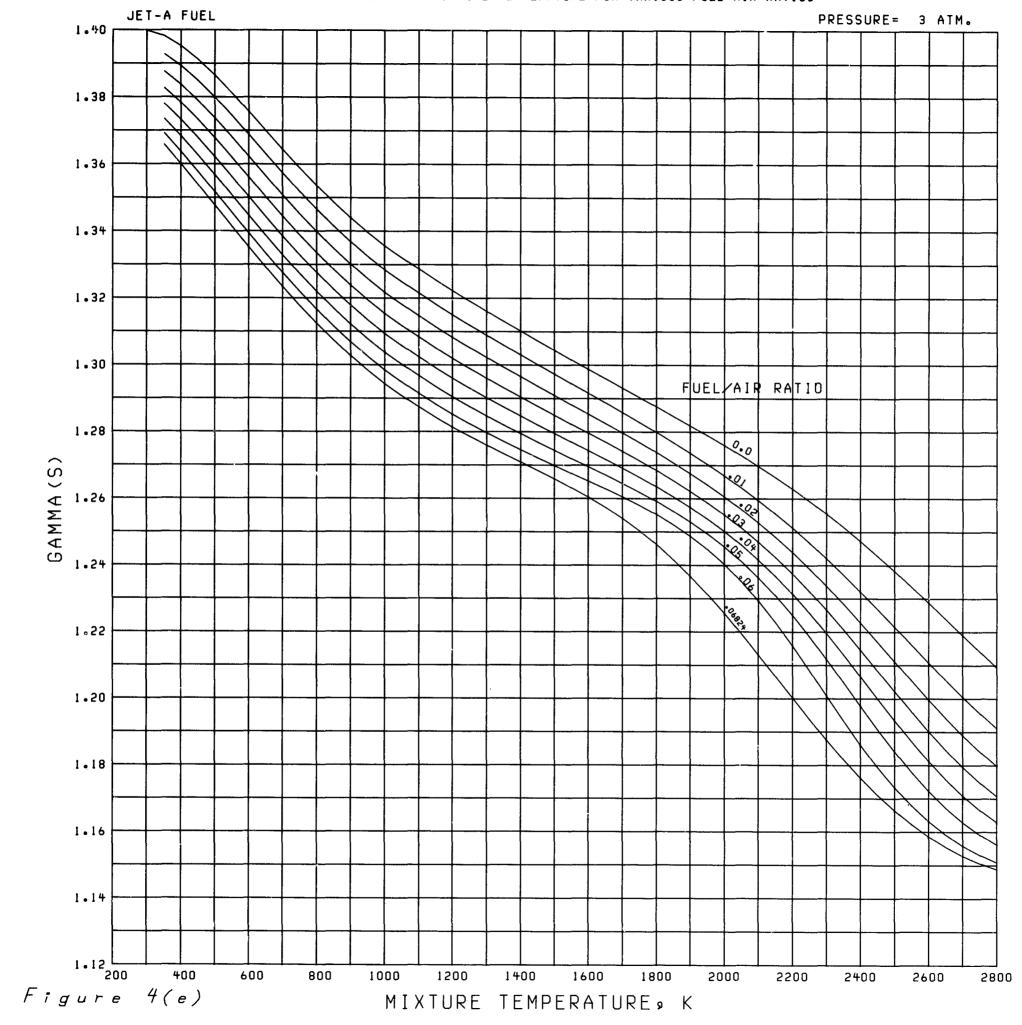


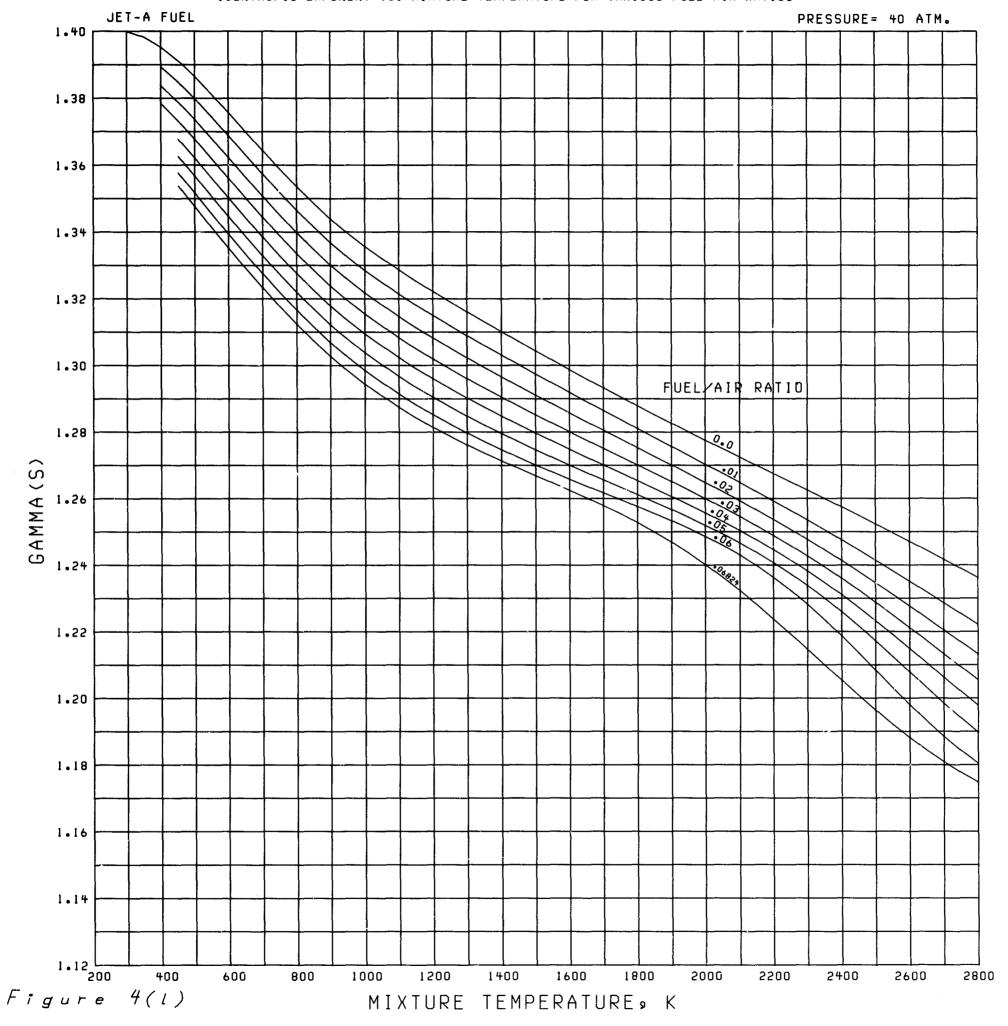


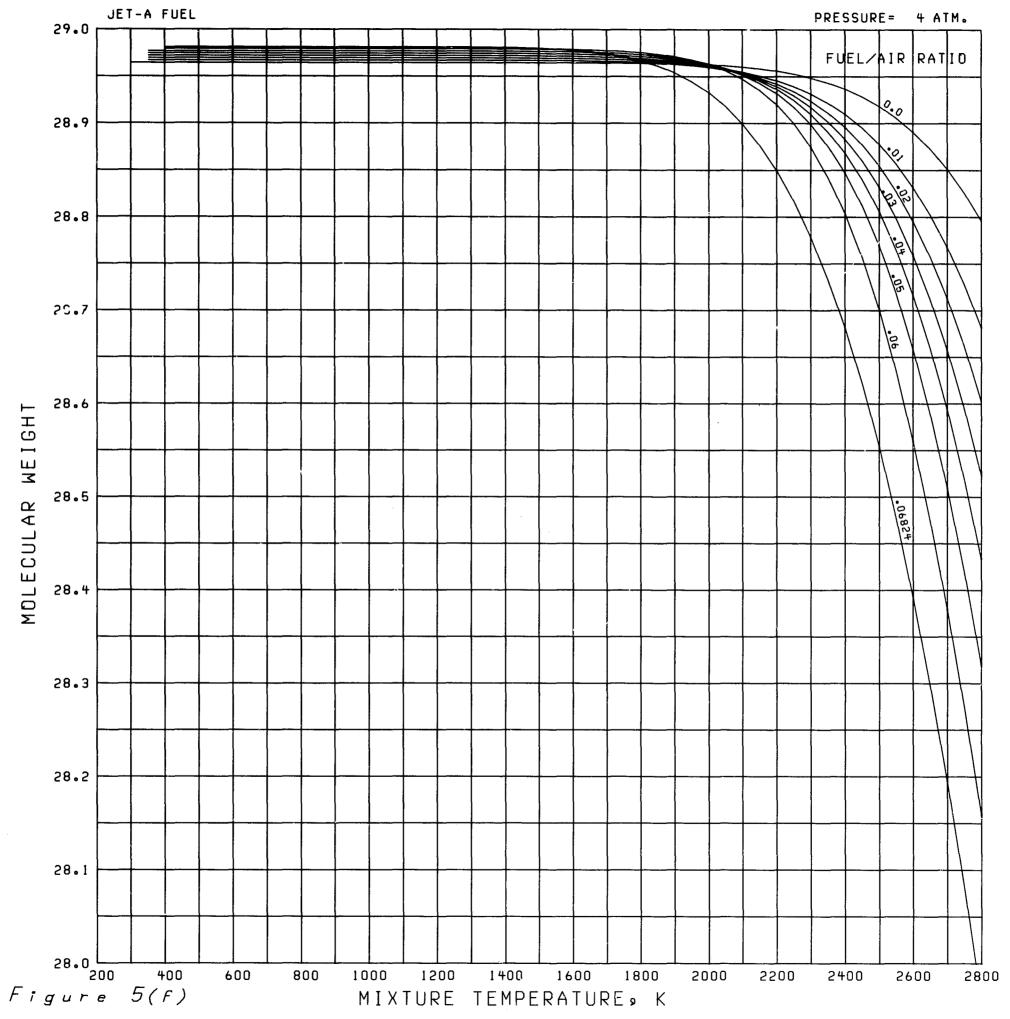


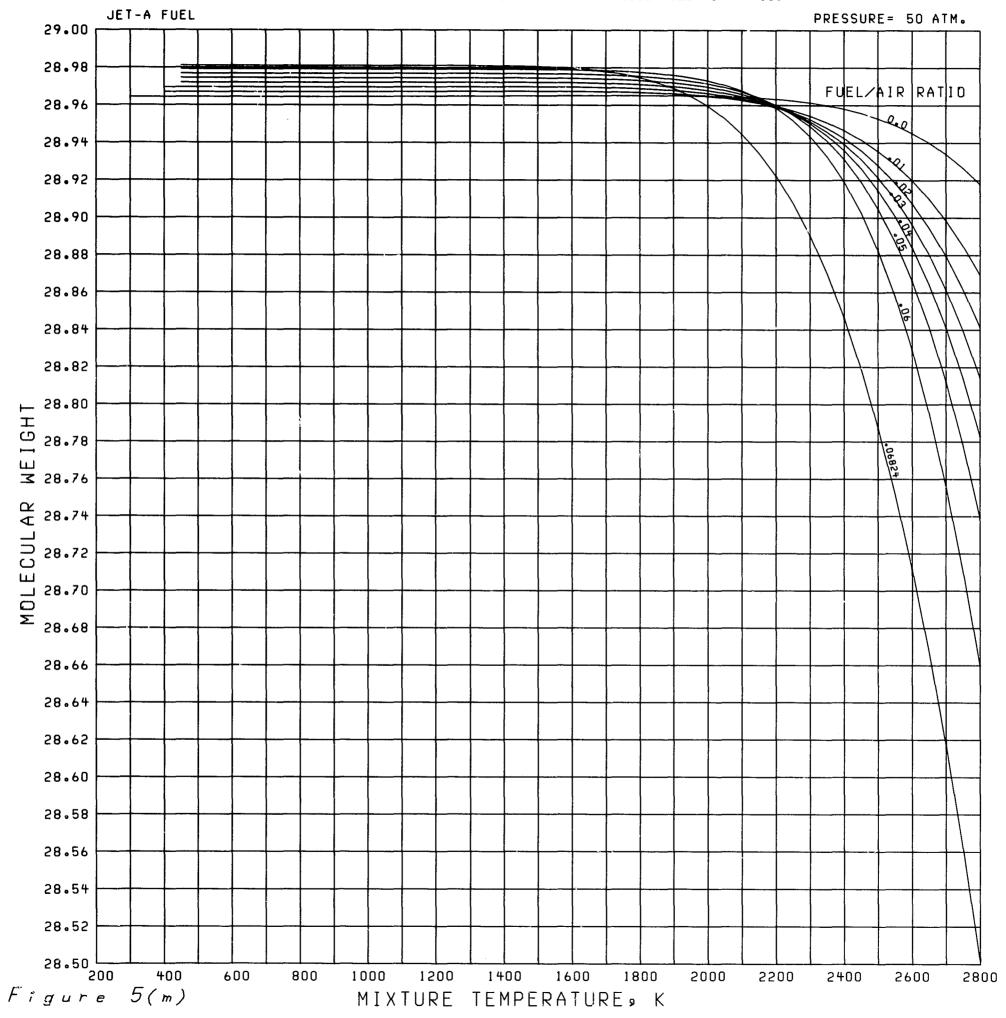


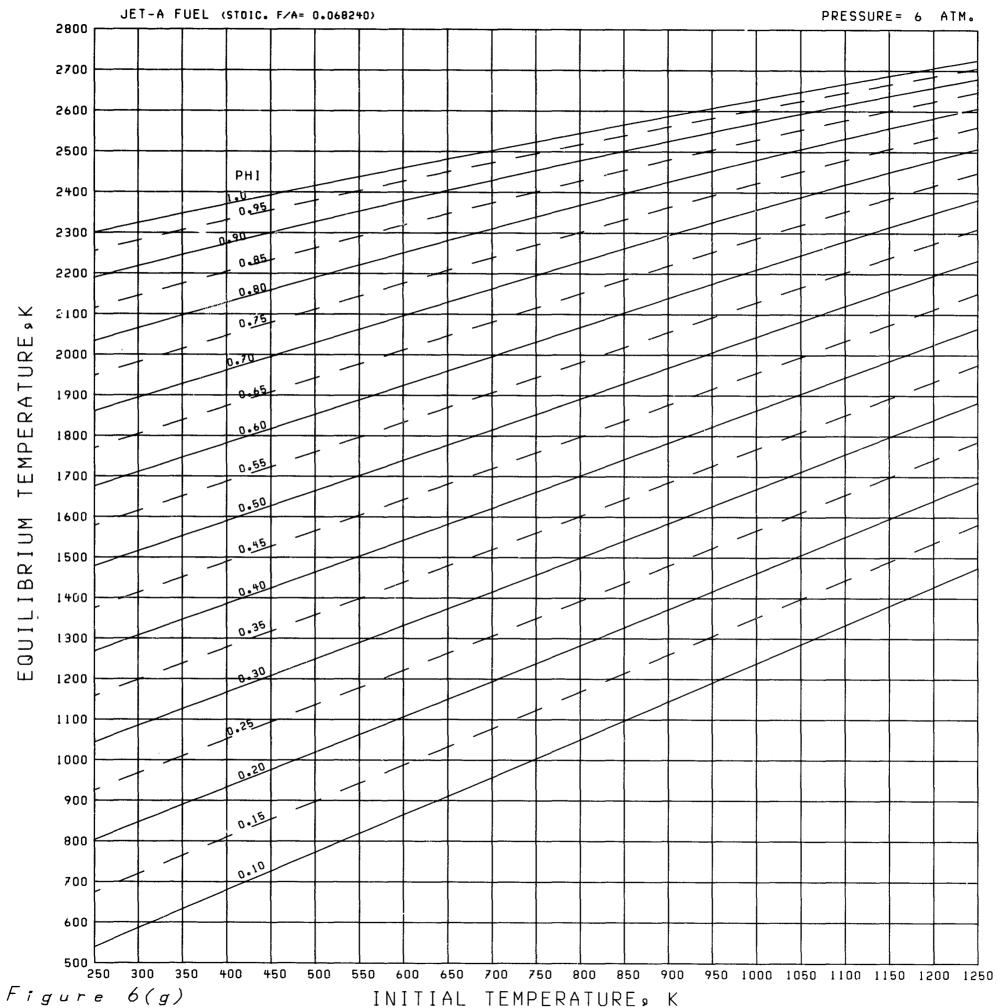


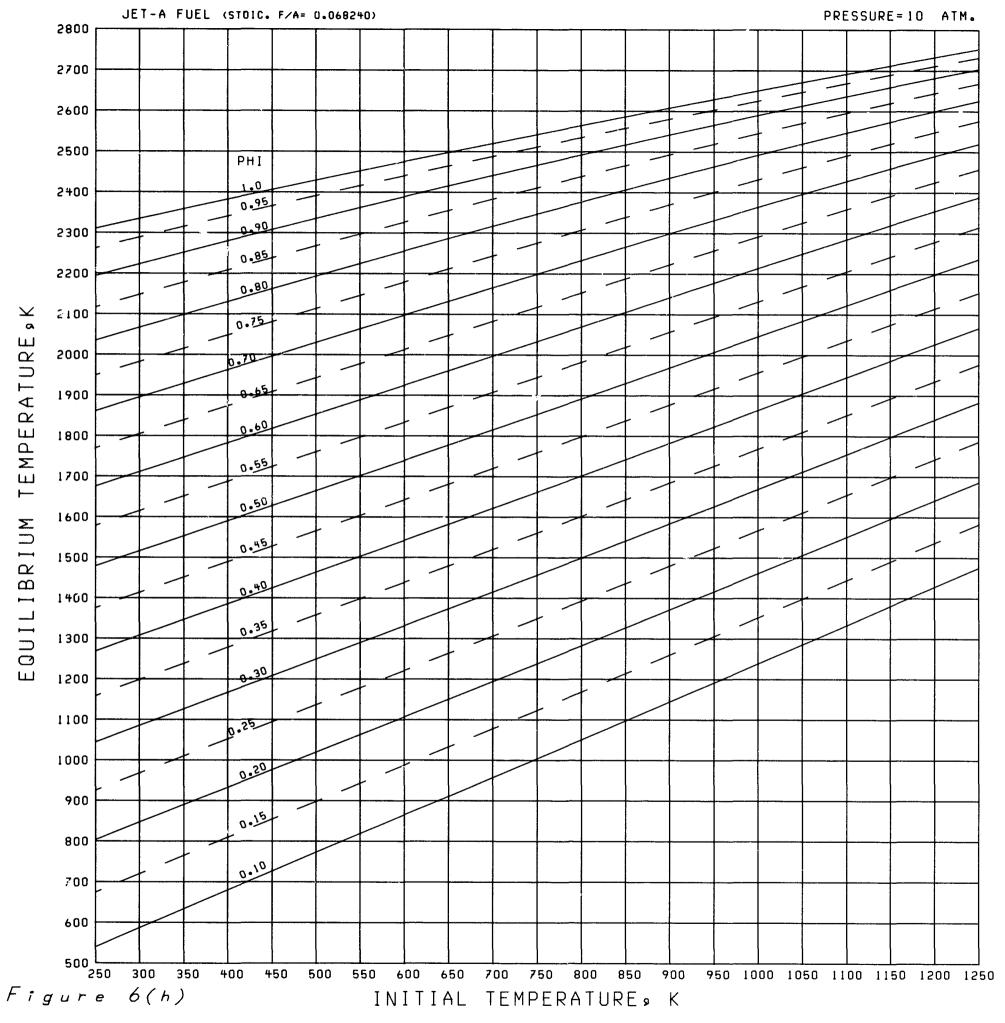




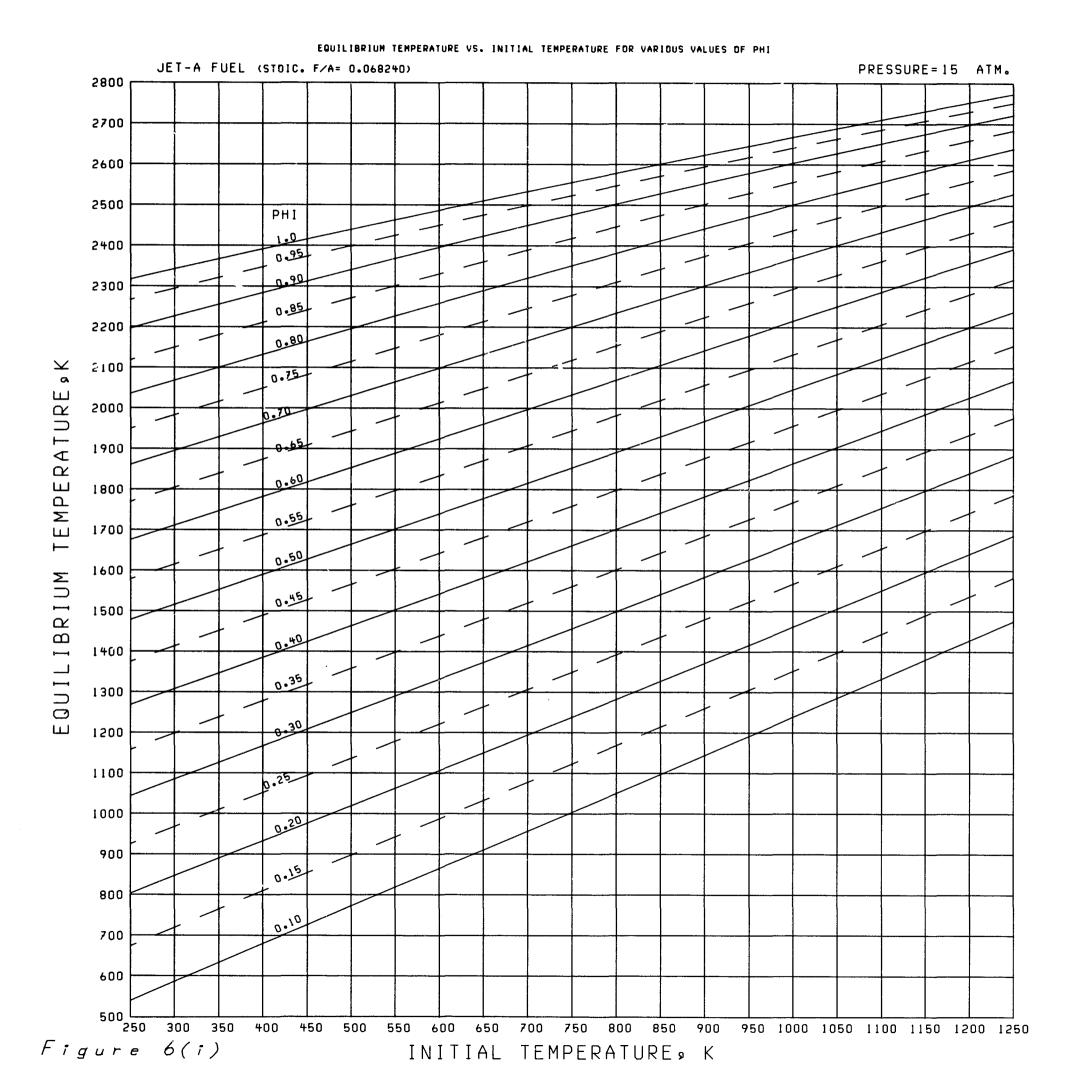


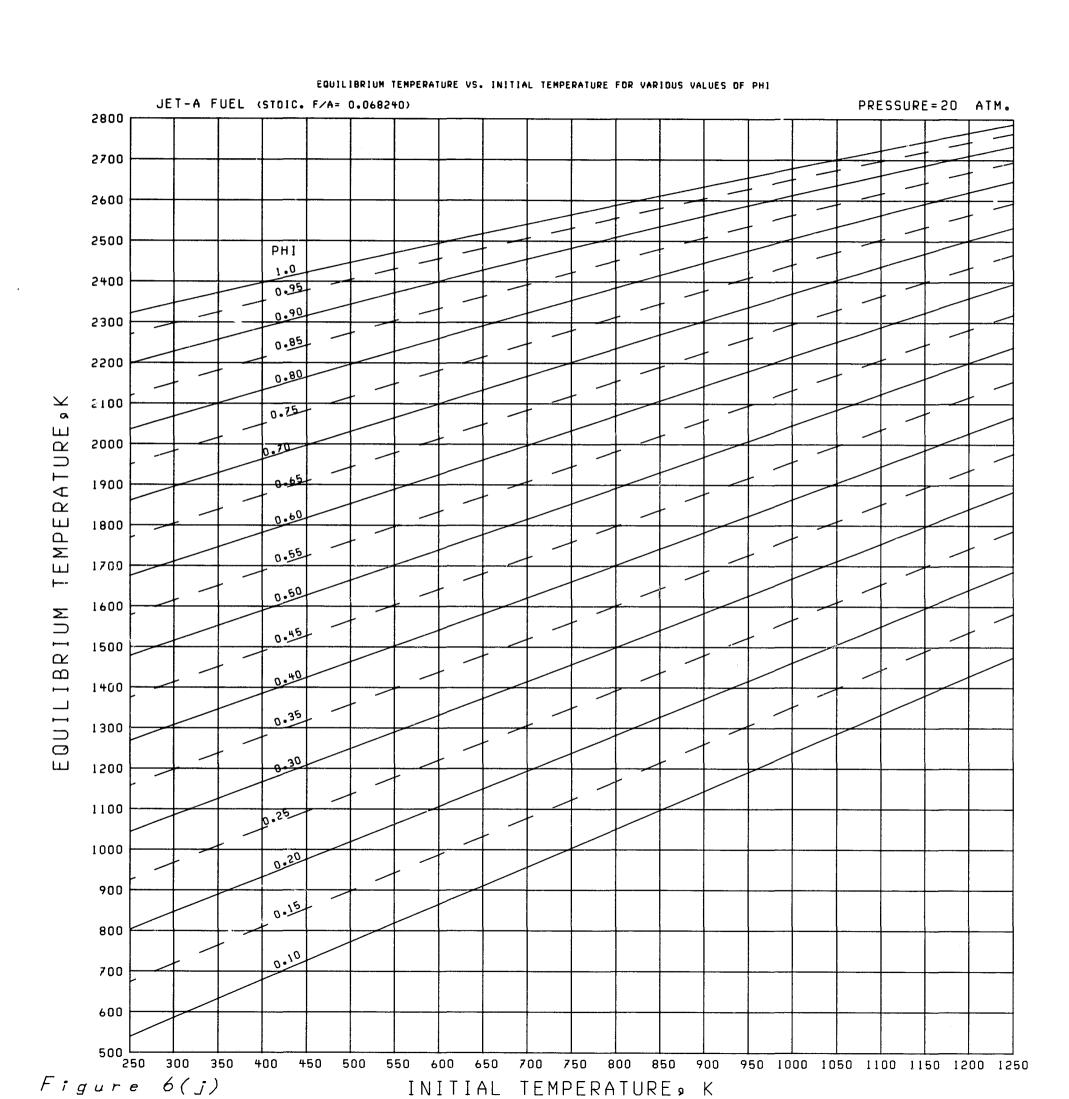


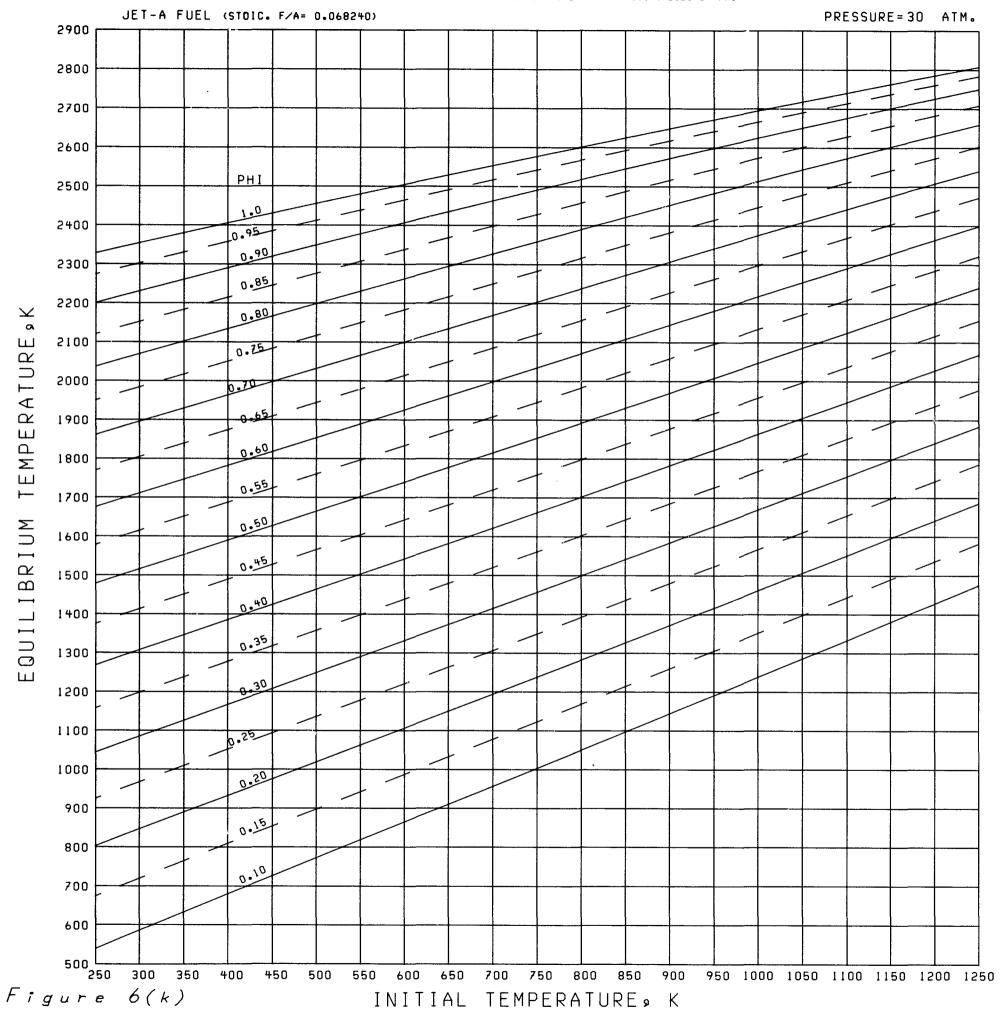


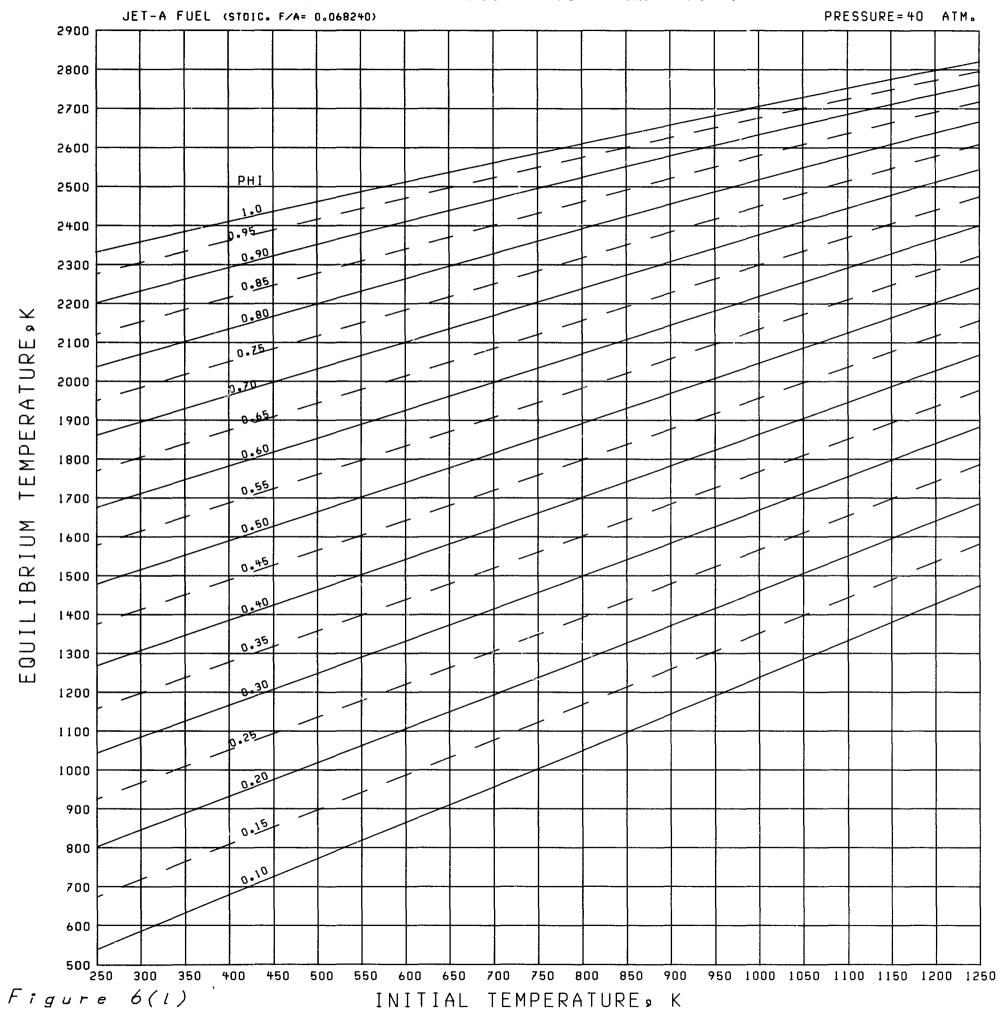


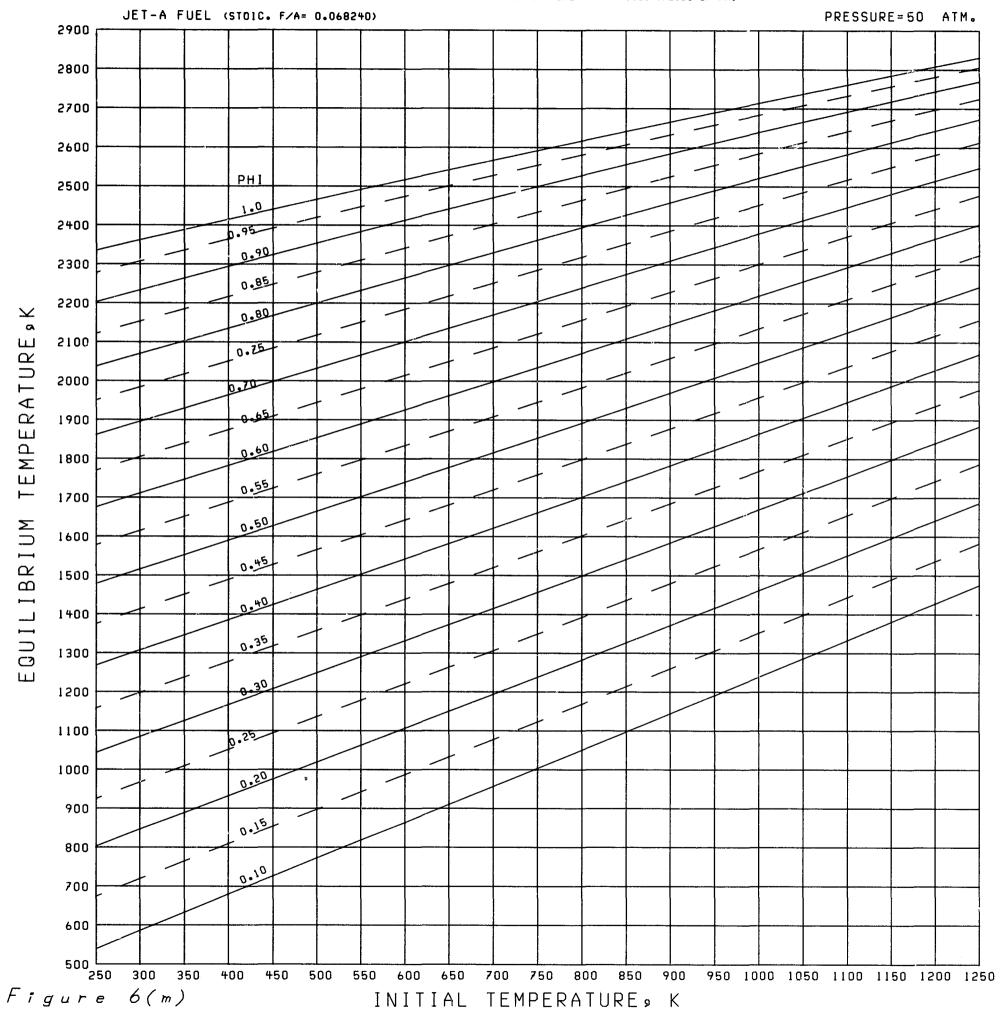
THITTE TENETRALIUM











C 1.000000 H 1.906699 AR 1.000000 2.000000 C 1.000000 0 2.000000 N 2.000000 0.000000 0 2.000000 0.000000	0.000000 0.000000 0.000000 0.000000 00 0.000000 0.000000 00 0.000000 0.000000 00 0.000000 0.000000 00	0.000000 0.00045600 0.00 0.000000 0.75525296 0.00	L 298.150 F G 250.001 0 G 250.001 0 G 250.001 0 G 250.001 0	0.80700 0.00000 0.00000 0.00000 0.00000
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 537.4 T, DEG F 507.6	1'6.5400 F/A= 0.00682 1.0000 1.5000 2.0000 14.7 22.0 29.4 537.4 537.4 537.4 507.6 507.6 507.6 507.6 6.5690-4 9.8536-4 1.3138-3 28.966 28.966 28.966 0.2501 0.2501 0.2501 1.3780 1.3780 1.3780 461.0 461.0	PERCENT FUEL= 0.6778 PHI= 0.10 3.0000 4.0000 6.0000 10.000 44.1 58.8 88.2 147.4 537.4 537.4 537.4 537.4 537.5 507.6 507.6 507.6 507.6 507.6 28.966 28.966 28.966 28.966 0.2501 0.2501 0.2501 0.2501 1.3780 1.3780 1.3780 1.3780 461.0 461.0 461.0	0 15.000 20.000 0 220.4 293.9 1 537.4 537.4 6 507.6 507.6 3 9.8536-3 1.3138-2 6 28.966 28.966 1 0.2501 0.2501 0 1.3780 1.3780	30,000 40,000 50,000 440.9 587.8 734.8 537.4 537.4 537.4 507.6 507.6 507.6 1,9707-2 2.6276-2 3.2845-2 28.966 28.966 28.966 0.2501 0.2501 0.2501 1,3780 1,3780 1,3780 461.0 461.0 461.0
MOLE FRACTIONS AR 0.00926 C02 0.01439 H20 0.01343 N2 0.77565 O2 0.18727	0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565	0.00926 0.00926 0.00926 0.0092 0.01439 0.01439 0.01439 0.0143 0.01343 0.01343 0.01343 0.0134 0.77565 0.77565 0.7756 0.18727 0.18727 0.18727 0.1872	0.01439 0.01439 0.01343 0.01343 0.77565 0.77565	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565 0.18727 0.18727 0.18727
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 801.9 T, DEG F 983.7	28.968 28.968 28.968 0.2681 0.2681 0.2681 1.3439 1.3439 1.3439	PERCENT FUEL= 1.3464 PHI= 0.20 3.0000 4.0000 6.0000 10.000 44.1 58.8 88.2 147.4 801.9 801.9 801.9 801.9 983.7 983.7 983.7 983.7 983.7 28.968 28.968 28.968 28.968 0.2681 0.2681 0.2681 0.2681 1.3439 1.3439 1.3439 1.3439 556.2 556.2 556.2	15.000 20.000 220.4 293.9 801.9 801.9 7 983.7 533.7 3 6.6034-3 8.8046-3 3 28.968 28.968 1 0.2681 0.2681 9 1.3439 1.3439	30,000 40,000 50,000 440.9 587.8 734.8 801.9 801.9 801.9 983.7 983.7 983.7 1,3207-2 1,7609-2 2,2011-2 28,968 28,968 28,968 0,2681 0,2681 0,2681 1,3439 1,3439 1,3439 556.2 556.2 556.2
MOLE FRACTIONS AR 0.00920 C02 0.02829 H20 0.02669 N2 0.77047 02 0.16535	0.02829 0.02829 0.02829 0.02669 0.02669 0.02669	0.02829 0.02829 0.02829 0.0282 0.02669 0.02669 0.02669 0.0266 0.77047 0.77047 0.77047 0.7704	9 0.02829 0.02829 9 0.02669 0.02669 7 0.77047 0.77047	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.77047 0.77047 0.77047 0.16535 0.16535 0.16535

CASE= 2 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2269.5 T, DEG F 3625.5 RHO, G/CC 7.7076-5 M, MOL NT 28.708 CP, CAL//(G/(K) 0.5673 GAMMA (S) 1.1712 SON VEL,M/SEC 877.4	2289.4 2300.1 23(3661.2 3680.5 36' 1.5305-4 2.2868-4 3.04' 28.751 28.774 28 0.5330 0.5147 0.5 1.1784 1.1828 1.	000 3.0000 4.0000 9.4 44.1 58.1 7.3 2316.9 2323.1 3.4 3710.6 3722. 2-4 4.5463-4 6.0480- 790 28.810 28.82 0.25 0.4862 0.475	88.2 147.0 220.4 2 2331.6 2341.1 2348.0 3 3737.1 3754.4 3766.6 1 9.0451-4 1.5024-3 2.2482-3 2 28.842 28.863 28.877 0.4612 0.4448 0.4331 2 1.1975 1.2027 1.2068	293.9 440.9 567.8 734.8 2352.4 2358.1 2361.8 2364.3 3774.6 3784.9 3791.5 3796.3 2.9930-3 4.4805-3 5.9664-3 7.4511-3 28.887 28.897 28.997 28.913 0.4254 0.4155 0.4090 0.4044 1.2095 1.2133 1.2158 1.2177
MOLE FRACTIONS AR C0 0.01273 C02 0.11299 H 0.00056 H2 0.00237 H20 0.11478 N0 0.00385 N02 0.00000 N2 0.72493 0 0.00069 OH 0.00432 02 0.01409	0.00869 0.00870 0.00 0.01080 0.00974 0.00 0.11511 0.11627 0.00 0.00040 2.00033 0.00 0.00197 0.00175 0.00 0.11567 0.11615 0.1 0.00387 0.00309 0.00 0.72601 0.72659 0.77 0.00053 0.00359 0.00 0.00386 0.00359 0.00 0.01308 0.01254 0.00	902 0.00805 0.00744 706 0.11812 9.1188 7028 0.00023 0.00024 161 0.00142 0.0013 70387 0.00387 0.0038 7000 0.0000 0.0000 70397 0.72751 0.7278 7040 0.00034 0.0003 7040 0.00034 0.0003 7050 0.00034 0.0003 7050 0.00034 0.0003	0 0.00653 0.00554 0.00483 0 0.1978 0.12086 0.12164 0 0.0016 0.00012 0.00009 0 0.00114 0.00095 0.00082 7 0.00386 0.00385 0.00386 0 0.00300 0.00000 0.00000 0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00010 0 0.00025 0.00020 0.00017 0 0.00277 0.00250 0.00230	0.00436 0.00376 0.00337 0.00309 0.12215 0.12280 0.12323 0.12353 0.00008 0.00006 0.00005 0.00004 0.00074 0.00063 0.00057 0.00062 0.11848 0.11873 0.11890 0.11902 0.00382 0.00381 0.00380 0.00379 0.00000 0.00000 0.00000 0.00010 0.72948 0.72980 0.73000 0.73015 0.00015 0.00012 0.00011 0.00011 0.00216 0.00198 0.00186 0.00177
CASE= 2 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2298.1 T, DEG F 3676.8 RHO, G/CC 7.5806-5 M, MOL WT 28.590 CP, CAL/(G)(K) 0.6063 GAMMA (S) 1.1646 SON VEL,M/SEC 882.2	14.7 22.0 2320.6 2332.9 23 3717.3 3739.6 37 1.5040-4 2.2460-4 2.98 28.638 28.665 28 0.5710 0.5521 0.5 1.1711 1.1749 1.	000 3.0000 4.000 9.4 44.1 58.1 1.4 252.7 2360.1 4.8 3775.2 3789.1 3-4 4.4609-4 5.9319-1 683 28.707 28.72 394 0.5226 0.511	88.2 147.0 220.4 4 2370.7 2382.8 2391.8 5 3807.6 3829.4 3845.5 4 8.8659-4 1.4715-3 2.2004-3 3 28.745 28.771 28.790 0.4966 0.4795 0.4671 1 1.1879 1.1925 1.1961	233.9 440.9 567.8 734.8 2397.7 2405.6 2410.9 2414.7 3856.2 3870.4 3879.9 3886.8 2.9279-3 4.3799-3 5.8294-3 7.2771-3 28.803 28.820 28.831 28.839 0.4589 0.4482 0.4411 0.4359 1.1986 1.2020 1.2044 1.2062
MOLE FRACTIONS AR 0.00861 C0 0.11207 H 0.00082 H2 0.01368 H20 0.11871 N0 0.00320 N2 0.71995 O 0.00064 OH 0.00433 O2 0.00869	0.00863 0.00864 0.0 0.01716 0.01596 0.0 0.11442 0.11574 0.1 0.00060 0.00050 0.0050 0.10320 0.00294 0.0 0.11976 0.12033 0.1 0.00313 0.00307 0.7 0.72121 0.72191 0.7 0.00048 0.00041 0.0 0.003757 0.00694 0.0	513 0.01400 0.0132 565 0.11790 0.1187 504 0.00036 0.0003 526 0.00252 0.0023 5071 0.12123 0.1215 5030 0.00296 0.0029 5036 0.72303 0.7234 5036 0.00030 0.00029 5036 0.00310 0.0029	8 0.01218 0.01093 0.00999 5 0.11990 0.12127 0.12229 2 0.00026 0.00020 0.00016 5 0.00215 0.00190 0.00173 7 0.12203 0.12257 0.12296 1 0.00282 0.00271 0.00262 7 0.72407 0.72478 0.72530 5 0.00021 0.00017 0.00013 2 0.00257 0.00238 0.00216	0.12297 0.12389 0.12450 0.12495 0.00014 0.00011 0.00010 0.00009 0.00161 0.00145 0.00135 0.00127 0.12321 0.12354 0.12378 0.12378 0.12378 0.00255 0.00244 0.00237 0.00231 0.72566 0.72613 0.72645 0.72668 0.00012 0.00009 0.00007 0.000201 0.00008 0.00007 0.000201 0.00182 0.00169 0.00159

C 1.000000 H 1.906699 0.0000 AR 1.000000 0.000000 0.0000 C 1.000000 0 2.000000 0.0000 N 2.000000 0.000000 0.0000 0 2.000000 0.000000 0.0000	0.00000 00 0.000000 0.00000 00 0.000000 0.00000 00 0.000000	00.00000000	00 0 0.00000 00 0 0.00000 00 0 0.00000
CASE= 4 0/F=146.5400 P, ATM 0.5000 1.0000 P, PSIA 7.3 14.7 T, DEG K 1050.5 1050.5 T, DEG F 1431.2 1431.2 RHO, G/CC 1.6802-4 3.3603-4 M, MOL WT 28.966 28.966 CP, CAL/(GIKK) 0.2783 0.2783 GAMMA (S) 1.3271 1.3271 SON VEL,M/SEC 632.6 632.6	22.0 29.4 44.1 1050.5 1050.5 1050.5 1431.2 1431.2 1431.2 5.0405-4 6.7207-4 1.0081-3 1. 28.966 28.966 0.2783 0.2783	LE 0.6778 PHI= 0.1000 4.0000 6.0000 10.000 15.000 58.8 88.2 147.0 220.4 1050.5 1050.5 1050.5 1050.5 1431.2 1431.2 1431.2 1431.2 1431.2 3441-3 2.0162-3 3.3604-3 5.0405-3 6 28.966 28.966 28.966 28.966 0.2783 0.2783 0.2783 0.2783 1.3271 1.3271 1.3271 632.6 632.6 632.6 632.6	20,000 30,000 40,000 50,000 293.9 440.9 587.8 734.8 1050.5 1050.5 1050.5 1050.5 1431.2 1431.2 1431.2 1431.2 6.7207-3 1,0081-2 1,3442-2 1,6802-2 28.966 28.966 28.966 28.966 0.2783 0.2783 0.2783 0.2783 1.3271 1,3271 1,3271 632.6 632.6 632.6 632.6
MOLE FRACTIONS AR 0.00926 0.00926 CO2 0.01439 0.01439 H20 0.01343 0.01343 NO 0.00006 0.00006 NO2 0.00000 0.00000 N2 0.77562 0.77562 O2 0.18724 0.18724	0.01439 0.01439 0.01439 0 0.01343 0.01343 0.01343 0 0.00006 0.00006 0.00006 0 0.00000 0.00000 0.00000 0 0.77562 0.77562 0.77562 0	0.01439	0.00926 0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.01343 0.00006 0.00006 0.00006 0.00006 0.0001 0.00001 0.00001 0.00001 0.77562 0.77562 0.77562 0.77562 0.18723 0.18723 0.18723
CASE= 4 0/F= 73.2700 P, ATM 0.5000 1.0000 P, PSIA 7.3 14.7 T, DEG K 1282.6 1282.6 T, DEG F 1849.0 1849.0 RHO, G/CC 1.3762-4 2.7523-4 M, MOL WT 28.968 28.968 CP, CAL/(G K) 0.2917 0.2917 GAMMA (S) 1.3075 1.3075 SON VEL,M/SEC 693.8 693.8	22.0 29.4 44.1 1282.6 1282.6 1282.6 1849.0 1849.0 1849.0 4.1285-4 5.5047-4 8.2570-4 1. 28.968 20.968 28.968 0.2917 0.2917 0.2917	EL= 1.3464 PHI= 0.2000 4.0000 6.0000 10.000 15.000 58.8 88.2 147.0 220.4 1282.6 1282.6 1282.6 1282.6 1849.0 1849.0 1849.0 1849.0 1849.0 10099-3 1.6514-3 2.7523-3 4.1285-3 5 28.968 28.968 28.968 28.968 0.2917 0.2917 0.2917 0.2917 1.3075 1.3075 1.3075 1.3075 693.8 693.8 693.8	20,000 30,000 40,000 50,000 233,9 440,9 587,8 734,8 1282,6 1282,6 1282,6 1282,6 1849,0 1849,0 1849,0 1849,0 5,5047-3 8,2571-3 1,1009-2 1,3762-2 28,968 28,968 28,968 28,968 0,2917 0,2917 0,2917 0,2917 1,3075 1,3075 1,3075 1,3075 693,8 693,8 693,8 693,8
MOLE FRACTIONS AR CO2 0.00920 0.00920 H20 0.02669 0.02669 N0 0.00000 0.00000 N2 0.77030 0.77030 OH 0.00001 0.00000 O2 0.16519 0.16518	0.02829 0.02829 0.02829 0 0.02669 0.02669 0.02669 0 0.00034 0.00034 0.00034 0 0.00000 0.00000 0.00001 0 0.77030 0.77030 0.77030 0 0.00000 0.00000 0.00000 0	0.02829 0.02829 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.02669 0.00034 0.00034 0.00034 0.00034 0.00001 0.00001 0.00001 0.00001 0.77030 0.77030 0.77030 0.77030 0.00001 0.00000 0.00000 0.00000	0.00920 0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.02669 0.00034 0.00034 0.00034 0.00034 0.00002 0.00002 0.00002 0.00002 0.77030 0.77030 0.77030 0.77030 0.00000 0.00000 0.00000 0.00000 0.16517 0.16517 0.16516 0.16516

P, ATM 0.50	7.3 14.7 7.2 2521.9 7.3 4079.7 3-5 1.3705-4 285 28.360 711 0.7200 170 1.1526	F/A= 0.06483 1.5000 2.0000 22.0 29.4 2541.5 2555.1 4115.0 4139.4 2.0429-4 2.7122-4 28.403 28.433 0.6923 0.6736 1.1559 1.1564 927.4 930.3	3.0000 4.0000 44.1 58.8 2573.7 2586.8 4173.0 4196. 4.0447-4 5.3714- 3 28.473 28.50 0.6485 0.6318 1.1618 1.164	8 88.2 147.0 6 2604.1 2625.2 4227.6 4265.6 8 8.0135-4 1.3270-3 28.539 28.585 0.6088 0.5820 8 1.1678 1.1/24	15.000 20.000 220.4 293.5 2641.1 2651.5 4294.2 4313.	9 440.9 587.8 734.8 9 2666.5 2676.4 2683.7 7 4340.0 4357.7 4371.0 3 3.9315-3 5.2266-3 6.5189-3 3 28.674 28.696 28.712 0.5309 0.5189 0.5100 1.1823 1.1849 1.1869
MOLE FRACTIONS AR C0 0.03i C02 0.09; H 0.00i H02 0.00i H2 0.00i H20 0.10i N0 0.00 N02 0.00i N2 0.71: 0 0.00i OH 0.00i OH 0.00i	0.02802 308 0.09618 253 0.00196 200 0.00000 575 0.00507 594 0.10758 571 0.00729 900 0.00000 259 0.71441 278 0.00225 974 0.00903	0.00859 0.00859 0.02638 0.02522 0.09801 0.09930 0.00167 0.00143 0.00000 0.00001 0.00468 0.00442 0.10850 0.10913 0.00737 0.00742 0.00000 0.00000 0.71545 0.71617 0.00197 0.00179 0.00860 0.00829 0.01877 0.01816	2 0.02358 0.02241 0.10111 0.10231 0.00126 0.0011 0.00061 0.0000 0.000406 0.0038 0.10999 0.11058 0.00748 0.0075 0.00000 0.00000 0.7 0.71717 0.71788 0.00156 0.0014	8 0.2082 0.1883 0.10417 0.10636 0.00093 0.00074 0.00001 0.00001 0.00348 0.00308 0.11138 0.11234 0.00754 0.00755 0.00000 0.00000 0.71881 0.71996 0.00121 0.00100 0.00121 0.00657	0.00865 0.0086 0.01729 0.0162; 0.10805 0.1092 0.00061 0.0005; 0.00001 0.0005; 0.11305 0.1135; 0.00755 0.0075; 0.0001 0.0000 0.72084 0.7214; 0.00085 0.0076; 0.001416 0.0058;	3 0.01477 0.01378 0.01303 1 0.11080 0.11189 0.11271 3 0.00044 0.00038 0.00034 1 0.00001 0.00001 0.00001 9 0.00232 0.00215 0.00202 4 0.11418 0.11462 0.11494 4 0.00751 0.00749 0.00746 1 0.00001 0.00001 0.00001 4 0.72225 0.72280 0.72322 5 0.00065 0.00057 0.00052 5 0.00545 0.00517 0.000496
P, ATM 0.56	/F= 14.6540 000 1.0000	F/A= 0.06824 1.5000 2.0000		.3881 PHI= 1.00		
P, PSIA T, DEG K 250. T, DEG F 404! RHO, G/CC 6.848' M, MOL WT 28. CP, CAL/IGI(K) 0.7' GAMMA (S) 1.1' SON VEL, M/SEC 920	3.4 4113.7 3-5 1.3540-4 151 28.229 999 0.7473 150 1.1503	22.0 29.4 2561.3 2575.6 4150.7 4176.4 2.0179-4 2.6785-4 28.274 28.305 0.7189 0.6998 1.1535 1.1558 932.1 935.1	44.1 58.6 2595.3 2608.3 4211.8 4236.3 3.9932-4 5.3020-4 5.28.347 28.376 8.0.6741 0.656 3.1.1590 1.1614	88.2 147.0 2627.6 2650.2 3 4269.9 4310.6 7.9077-4 1.3089-3 5 28.416 28.465 7 0.6335 0.6063 1 1.1647 1.1689	20.00 20.000 20.	440.9 587.8 734.8 2695.1 2706.0 2714.2 8 4391.5 4411.2 4425.9 3 3.8744-3 5.1493-3 6.4211-3 7 28.561 28.585 28.602 6 0.5545 0.5424 0.5334 7 1.1781 1.1805 1.1823

P640000 H 1,906691 AR 0000000 C 0000000 C 1.000000 C 1.000000 C 1.000000 C 0.000000 C 0.0000000 C 0.000000 C 0.0000000 C 0.000000 C 0.0000000 C 0.000000 C 0.00000 C 0.00000 C 0.000000 C 0.000000 C 0.00000 C 0.00000 C 0.00000 C 0.00000 C 0.000000 C 0.00000 C 0.000000 C 0.00000 C 0.0000 C 0.0000 C	0.000000 0.000000 00 00.000000 0.000000 00.000000 0.000000	0.000000 0.000450 0.000000 0.75525	800 0.00 0 600 0.00 0 296 0.00 0	1150.000 0 1150.000 0	0.80700 0.00000 0.00000 0.00000 0.00000
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1380.7 T, DEG F 2025.6	14.7 22.0 29.4 1380.8 1380.8 1380.8 2025.7 2025.7 2025.7 2.5566-4 3.8349-4 5.1132-4 28.966 28.966 28.966 0.2925 0.2925 0.2925 1.3064 1.3064 1.3764	PERCENT FUEL = 0.4 3,0000 4,0000 44.1 58.8 1380.8 1380.8 2025.7 2025.7 7.6697-4 1.0226-3 28.966 0.2925 0.2925 1,3064 1,3064 719.6 719.6	6778 PHI = 0.1000 6.0000 10.000 88.2 147.0 1380.8 1380.8 2025.7 2025.7 1.5339-3 2.5566-3 3 28.966 28.966 0.2925 0.2925 1.3064 13064 719.6	15.000 20.000 220.4 293.9 1380.8 1380.8 2025.7 2025.7	30.000 40.000 50.000 440.9 587.8 734.8 1380.8 1380.8 1380.8 2025.7 2025.7 2025.7 7.6698-3 1.0226-2 1.2783-2 28.966 28.967 28.967 0.2925 0.2925 0.2925 1,3064 1.3064 1.3064 719.6 719.6
MOLE FRACTIONS AR CO2 0.01439 H20 0.01343 NO 0.00066 NO2 0.00000 N2 0.77531 OH 0.00001 O2 0.18693	0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.00066 0.00066 0.00066 0.00000 0.00361 0.00001 0.77531 0.77531 0.77531 0.00001 0.00001 0.00001	0.00926 0.00926 0.01439 0.01439 0.01343 0.00343 0.00066 0.00066 0.00001 0.0001 0.77531 0.77531 0.00001 0.0001 0.18693 0.18693	0.01439 0.01439 0.01343 0.01343 0.00066 0.00066 0.00001 0.00002 0.77531 0.77531 0.00001 0.00001	0.00926 0.00926 0.01439 0.01439 0.01343 0.01343 0.00066 0.00066 0.00002 0.00002 0.77531 0.77531 0.00000 0.00000 0.18692 0.18692	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.00343 0.01343 0.00066 0.00066 0.00066 0.00003 0.00003 0.00003 0.77531 0.77531 0.77531 0.00000 0.00000 0.00000 0.18691 0.18691 0.18691
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1596.1 T, DEG F 2413.2	14.7 22.0 29.4 1596.2 1596.2 1596.2 2413.4 2413.5 2413.5 2.2117-4 3.3174-4 4.4231-4 28.967 28.967 28.967 0.3060 0.3059 0.3058 1.2892 1.2893 1.2894	3.0000 4.0000 44.1 58.8 1596.3 1596.3 2413.6 2413.6	3464 PHI= 0.2000 6.0000 10.000 88.2 147.0 1596.3 1596.3 2413.7 2413.7 1.3269-3 2.2114-3 28.968 28.968 0.3055 0.3055 1.2896 1.2897 768.7 768.7	15,000 20,000 220.4 293.9 1596.4 1596.4 2413.7 2413.8	30.000 40.000 50.000 440.9 587.8 734.8 1596.4 1596.4 1596.4 2413.8 2413.8 2413.8 6.6342-3 8.8456-3 1.1057-2 28.968 28.968 28.968 0.3053 0.3053 0.3053 1.2898 1.2898 1.2898 768.8 768.8 768.8
MOLE FRACTIONS AR CO2 0.00920 H20 0.02664 N0 0.00179 N02 0.00000 N2 0.76955 O 0.00001 OH 0.00010 O2 0.16442	0.02829 0.02829 0.02829 0.02664 0.02665 0.02665 0.00179 0.00179 0.00179 0.00001 0.00001 0.00001 0.76955 0.76956 0.76956 0.00001 0.00000 0.00000 0.00009 0.00008 0.00007	0.00920 0.00920 0.02829 0.02829 0.02665 0.00179 0.000179 0.00017 0.00001 0.00001 0.76956 0.76956 0.00000 0.00000 0.00007 0.00006 0.16443 0.16443	0.02829 0.02829 0.02666 0.02666 0.00179 0.00179 0.00002 0.00002 0.76956 0.76956 0.00000 0.00000 0.00005 0.00005	0.00920 0.00920 0.02829 0.02829 0.02667 0.02667 0.00179 0.00179 0.00002 0.00003 0.76956 0.76956 0.00000 0.00000 0.00004 0.00004 0.16442 0.16442	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02667 0.02667 0.02667 0.00180 0.00180 0.00180 0.00003 0.00004 0.00004 0.76956 0.76956 0.76956 0.00000 0.00000 0.00000 0.00004 0.00003 0.00003 0.16441 0.16441 0.16441

CASE= 17 P, ATM P, PSIA T, DEG K T, DEG K RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0.5000 1.000 7.3 14.1 1044.1 1044.1 1419.6 1419.5 128.970 28.970 28.97 0.2841 0.284 1.3183 1.318 628.5 628.	1,5000 2.000 7 22.0 29. 1 1044.1 1044.6 6 1419.6 1419.4 4 5.0722-4 6.7630-0 28.970 28.970 0 .2841 0.2841 0.284 13 1.3183 1.318	4 44.1 0 1044.0 10 6 1419.6 14 4 1.0144-3 1.35 0 28.970 28 1 0.2841 0. 3 1,3183 1.	2.0062 F 0000 6.0000 58.8 88.2 44.0 1044.0 19.6 1419.6 26-3 2.0289-3 .970 28.970 2841 0.2841 3183 1.3183 28.5 628.5	147.0 22 1044.0 104 1419.6 141 3.3815-3 5.072 28.970 28 0.2841 0.2 1.3183 1.3	000 20.000 0.4 293.9 4.0 1044.0 9.6 1419.6 2-3 6.7630-3 970 28.970 841 0.2841 183 1.3183 8.5 628.5	30.000 440.9 1044.0 1419.6 1.0145-2 28.970 0.2841 1.3183 628.5	40.000 587.8 1044.0 1419.6 1.3526-2 28.970 0.2841 1.3183 628.5	50,000 734.8 1044.0 1419.6 1.6908-2 28.970 0.2841 1.3182 628.5
MOLE FRACTIONS AR CO2 H2O NO NO2 N2 O2	0.00914 0.0091 0.04201 0.0420 0.03977 0.0397 0.00005 0.0000 0.00000 0.0000 0.76534 0.7653 0.14370 0.1433	0.04201 0.0420 0.03977 0.0397 0.00005 0.0000 0.00000 0.0000 0.76534 0.7653	1 0.04201 0.0 7 0.03977 0.0 5 0.00005 0.0 0 0.0000 0.0 4 0.76534 0.7	0914 0.00914 4261 0.04201 3977 0.03977 0005 0.00005 0000 0.00000 6534 0.76534 4370 0.14370	0.00914 0.00 0.04201 0.04 0.03977 0.03 0.00005 0.00 0.00000 0.00 0.76534 0.76 0.14370 0.14	201 0.04201 977 0.03977 005 0.00005 001 0.00001 534 0.76534	0.00914 0.04201 0.03977 0.00005 0.00001 0.76534 0.14369	0.00914 0.04201 0.03977 0.00005 0.00001 0.76534 0.14369	0.00914 0.04201 0.03977 0.00005 0.00001 0.76534 0.14369
CASE= P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F= 36.635(0.5000 1.00(7.3 1.268.6 1268. 1823.8 1823. 1.3915-4 2.7830- 28.971 28.97 0.2976 0.297 1.2995 1.2995 687.8 687	1.53C0 2.00C 7 22.0 29. 6 1268.6 1268. 9 1823.9 1823. 4 4.1745-4 5.5660- 11 28.971 28.971 6 0.2976 0.297 15 1.2995 1.299	4 44.1 6 1268.6 12 9 1823.9 18 4 8.3490-4 1.11 1 28.971 28 6 0.2976 0. 5 1.2995 1.	0000 6.0000 58.8 88.2 68.6 1268.6 23.9 1823.9	147.0 22 1268.6 126 1823.9 182 2.7830-3 4.174 28.971 28 0.2976 0.2 1.2995 1.2	000 20.000 0.4 293.9 8.6 1268.6 3.9 1823.9 5-3 5.5660-3 971 28.971 1976 0.2976 995 1.2995 7.9 687.9	30.000 440.9 1268.6 1823.9 8.3490-3 28.971 0.2976 1.2995 687.8	40.000 587.0 1268.6 1823.9 1.1132-2 28.971 0.2976 1.2995 687.8	50.000 734.8 1268.6 1823.9 1.3915-2 28.971 0.2976 1.2995 687.8
MOLE FRACTIONS AR CO2 H20 N0 N02 N2 OH O2	0.00908 0.009 0.05554 0.055 0.05267 0.052 0.00026 0.000 0.00000 0.000 0.76019 0.760 0.00001 0.000 0.12225 0.1223	44 0.05554 0.0555 67 0.05267 0.0526 66 0.00026 0.0002 70 0.00000 0.0000 71 0.76019 0.7601 72 0.00000 0.0000	4 0.05554 0.0 7 0.05267 0.0 6 0.00026 0.0 0 0.00000 0.0 9 0.76019 0.7 0 0.00000 0.0	0908 0.00908 5554 0.05554 5267 0.05267 0026 0.00026 0000 0.00001 6019 0.76019 0000 0.00000 2224 0.12224	0.00908 0.00 0.05554 0.05 0.05267 0.05 0.00026 0.00 0.00001 0.00 0.76019 0.76 0.00000 0.00 0.12224 0.12	554 0.05554 267 0.05267 026 0.00026 001 0.00001 019 0.76019 000 0.00000	0.00908 0.05554 0.05267 0.00026 0.00001 0.76019 0.00000 0.12224	0.00908 0.05554 0.05267 0.00026 0.00002 0.76019 0.00000 0.12223	0.00908 0.05554 0.05267 0.00026 0.00002 0.76019 0.00000 0.12223

```
PERCENT FUEL= 6.6862
     CASE=
               0/F= 13.9562
                                F/A= 0.07165
                                                                         PHI= 1.0500
                                 1.5000
                                         2.0000
                                                           ã.000ŏ
                                                                    6.0000
                                                                                     15.000
                                                                                            20,000
                                                                                                       30,000
                                                                                                               40,000
                                                                                                                        50,000
P, ATM
                0.5000
                        1.0000
                                                  3.0000
                                                                            10.000
P. PSIA
                          14.7
                                           29.4
                                                    44.1
                                                             58.8
                                                                     88.2
                                                                             147.0
                                                                                      220.4
                                                                                               293.9
                                                                                                       440.9
                                                                                                                5817.8
                                                                                                                         734.8
T. DEG K
                2312.0
                        2334,2
                                 2346.2
                                         2354.2
                                                  2364.9
                                                           2372.0
                                                                    2381.2
                                                                            2391.6
                                                                                     2398.9
                                                                                              2403.5
                                                                                                       2409.2
                                                                                                               2412.9
                                         3777.9
                                                  3797.1
                                                                            3845.2
                                                                                     3858.2
T, DEG F
                3701,9
                        3741.8
                                 3763.4
                                                           3809.8
                                                                    3826.5
                                                                                              3866.5
                                                                                                       3876.9
                                                                                                                3883.4
                                                                                                                        3888.0
RHO, G/CC
              7.4960-5 1.4874-4 2.2217-4 2.9538-4 4.4142-4 5.8711-4 8.7785-4 1.4578-3 2.1813-3 2.9037-3 4.3469-3 5.7887-3 7.2296-3
M, MOL WT
               28,442
                        28,489
                                28.514
                                         28.531
                                                  28.554
                                                           28.568
                                                                    28,588
                                                                            28.609
                                                                                     28.624
                                                                                              28.634
                                                                                                       28,645
                                                                                                               28.653
                                                                                                                        28,658
CP. CAL/(G)(K)
               0.6016
                        0.5614
                                0.5396
                                         0.5248
                                                  0.5049
                                                           0.4915
                                                                    0.4736
                                                                            0.4528
                                                                                     0.4376
                                                                                              0.4277
                                                                                                               0.4067
                                                                                                       0.4149
                                                                                                                        0.4008
GAMMA (S)
               1.1663
                        1.1739
                                 1.1785
                                          1.1819
                                                  1.1868
                                                           1.1903
                                                                    1.1953
                                                                            1.2018
                                                                                     1,2069
                                                                                              1.2105
                                                                                                       1.2154
                                                                                                               1,2188
                                                                                                                        1.2213
SON VEL, M/SEC
                887 8
                         894.2
                                  897.9
                                           900.5
                                                   904.0
                                                            906.5
                                                                     909.9
                                                                             914.0
                                                                                      917.0
                                                                                               919.1
                                                                                                        921.9
                                                                                                                923.8
                                                                                                                         925.1
MOLE FRACTIONS
               0.00854 0.00856 0.00856 0.00857 0.00858 0.00858 0.00859 0.00859 0.00860
AR
                                                                                            0.00860 0.00860
                                                                                                              0.00861 0.00861
CO
               0.02762
                       0.02569 0.02462 0.02390 0.02293
                                                         0.02228 0.02144 0.02048 0.01981
                                                                                             0.01939 0.01886
                                                                                                              0.01853
                                                                                                                      0.01831
C02
              0.10914
                       0.11130 0.11249 0.11330 0.11437 0.11509 0.11603 0.11709 0.11783
                                                                                            0.11830 0.11888
                                                                                                              0.11925
              0.00108
                      0.00081 0.00069 0.00061 0.00051 0.00045 0.00037 0.00030 0.00024
                                                                                            0.00021 0.00018
                                                                                                             0.00015 0.00014
                                                         0.00420 0.00400 0.00379 0.00364
               0.00553
                       0.00503 0.00476
                                        0.00458 0.00435
                                                                                             0.00354 0.00343
                                                                                                              0.00336 0.00331
                       0.12319 0.12379
                                        0.12419 0.12472
                                                         0.12507 0.12553 0.12604 0.12640
H20
               0.12206
                                                                                             0.12663 0.12692
                                                                                                              0.12710
                                                                                                                      0.12722
И0
               0.00243
                       0.00226 0.00215
                                        0.00206 0.00192
                                                         0.00182 0.00168 0.00149 0.00134
                                                                                            0.00123 0.00109
                                                                                                              0.00099 0.00091
N2
               0.71432
                       0.71559 0.71628
                                        0.71675 0.71738
                                                         0.71781 0.71836
                                                                           0.71900 0.71945
                                                                                            0.71975 0.72011
                                                                                                              0.72035
                                                                                                                      0.72051
0
               0.00052
                       0.00037 0.00030
                                        0.00025
                                                0.00020
                                                         0,00017 0,00013 0,00009 0,00007
                                                                                            0.00006
                                                                                                     0.00004
                                                                                                              0.00003 0.00003
OH
               0.00398
                       0.00343 0.00312
                                        0.00291 0.00262
                                                         0.00242 0.00215 0.00183 0.00160
                                                                                            0.00144 0.00124
                                                                                                              0.00111 0.00102
               0.00478
                       0.00377 0.00324 0.00288 0.00241 0.00211 0.00172 0.00130 0.00102 0.00085 0.00065
                                                                                                              0.00053 0.00045
     CASE = 2 0/F = 13.3218
                                 F/A= 0.07506
                                                                         PHI= 1.1000
                                                PERCENT FUEL= 6.9824
                                 1.5000
P. ATM
                0.5000
                        1.0000
                                         2,0000
                                                  3.0000
                                                           4.0000
                                                                                     15.000
                                                                                              20.000
                                                                                                                40.000
                                                                    6.0000
                                                                           10.000
                                                                                                       30.000
                                                                                                                        50,000
P. PSIA
                 7.3
                          14.7
                                  22.0
                                           29.4
                                                    44.1
                                                             58.8
                                                                      88.2
                                                                             147.0
                                                                                      220.4
                                                                                               293.9
                                                                                                        440.9
                                                                                                                587.8
                                                                                                                         734.8
                                                                    2363,2
T. DEG K
                2310.5
                        2329,1
                                 2338.6
                                          2344.7
                                                  2352.4
                                                           2357.3
                                                                            2369.5
                                                                                     2373.5
                                                                                              2375.9
                                                                                                       2378.8
                                                                                                                2380.5
                                                                                                                        2381.7
T, DEG F
                3699.1
                        3732.7
                                3749.8
                                         3760.8
                                                  3774.7
                                                           3783.4
                                                                   3794.1
                                                                            3805.3
                                                                                     3812.6
                                                                                              3816.9
                                                                                                       3822.1
                                                                                                                3825.2
                                                                                                                        3827.3
RHO, G/CC
              7.4538-5 1,4809-4 2,2138-4 2,9454-4 4,4061-4 5,8648-4 8,7787-4 1,4599-3 2,1868-3 2,9132-3 4,3654-3 5,8171-3 7,2684-3
M. MOL WT
                28,263
                        28,302
                                28.322
                                         28.335
                                                  28,350
                                                           28,360
                                                                   28.373
                                                                            28.385
                                                                                     28.393
                                                                                              28.398
                                                                                                       28,404
                                                                                                               28,407
                                                                                                                        28,410
               0.5507
                                                           0.4355
CP. CAL/(G)(K)
                        0.5062
                                 0.4828
                                         0.4676
                                                  0.4480
                                                                    0.4199
                                                                            0.4036
                                                                                     0.3930
                                                                                              0.3867
                                                                                                       0.3791
                                                                                                               0.3747
                                                                                                                        0.3717
                                                                                              1,2301
GAMMA (S)
               1.1773
                        1.1878
                                 1,1942
                                          1,1988
                                                  1.2052
                                                           1,2096
                                                                    1.2155
                                                                            1.2223
                                                                                     1,2271
                                                                                                       1.2338
                                                                                                                1.2361
                                                                                                                        1.2377
SON VEL, M/SEC
                894.5
                         901.5
                                  905.5
                                           908.2
                                                            914.3
                                                                     917.5
                                                                                      923.5
                                                                                               925.0
                                                                                                        926.9
                                                   911.8
                                                                             921.1
                                                                                                                928.0
                                                                                                                         928.8
MOLE FRACTIONS
               0.00846
                       0.00847 0.00848 0.00848 0.00849
                                                         0.00849 0.00849 0.00850
                                                                                    0.00850
                                                                                             0.00850
                                                                                                      0.00850
                                                                                                              0.00851
                                                                                                                       0.00851
CO
               0.03764
                       0.03625 0.03554 0.03508
                                                0.03451
                                                         0.03415 0.03372 0.03327 0.03299
                                                                                            0.03282 0.03263
                                                                                                              0.03251 0.03244
               0.10428
                       0.10586 0.10667 0.10719 0.10784
                                                         0.10825 0.10874
                                                                           0.10925 0.10958
                                                                                            0.10977 0.10999
                                                                                                              0.11012 0.11021
C02
                       0.00098 0.00082 0.00073 0.00061
                                                          0.00054 0.00045
                                                                           0.00036 0.00029
                                                                                             0.00026 0.00021
н
               0.00129
                                                                                                              0.00018 0.00017
H2
                       0.00763 0.00742 0.00729 0.00712
                                                         0.00702 0.00690
                                                                           0.00677 0.00669
                                                                                             0.00665
                                                                                                     0.00659
                                                                                                              0.00656 0.00654
               0.00806
H20
               0.12466
                       0.12572 0.12626
                                        0.12661 0.12706
                                                          0.12734 0.12769
                                                                           0.12806 0.12830
                                                                                             0.12845
                                                                                                     0.12863
                                                                                                              0.12873 0.12881
NO
               0.00168
                       0.00146
                               0.00132
                                        0.00122 0.00109
                                                          0.00099 0.00086
                                                                           0.00072 0.00061
                                                                                             0.00054 0.00046
                                                                                                              0.00040 0.00036
                       0.70903 0.70960
                                        0.70996
                                                         0.71073 0.71110
                                                                           0.71149 0.71174
                                                                                             0.71190 0.71209
                                                                                                              0.71220 0.71228
N2
               0.70794
                                                0.71043
               0.00035
                       0.00023 0.00018
                                        0.00015
                                                0.00011
                                                          0.00009 0.00006
                                                                           0.00004 0.00003
                                                                                            0.00002 0.00002
0
                                                                                                              0.00001 0.00001
                       0.00275 0.00243
OH
               0.00333
                                        0.00222 0.00193
                                                         0.00174 0.00149 0.00121 0.00102 0.00090 0.00076
                                                                                                             0.00066 0.00060
               0.00231
                       0.00161 0.00127 0.00107 0.00082 0.00067 0.00049 0.00033 0.00024 0.00019 0.00013 0.00010 0.00008
```

CASE= 4 0/F= P. ATM 0.5000 P. PSIA 7.3 T. DEG K 1499.0 T. DEG F 2238.6 RHO, G/CC 1.1776-4 M, MOL WT 28.969 CP, CAL/(G)(K) 0.3049 GAMMA (S) 1.2904 SON VEL,M/SEC 745.1	48.8467 F/A= 0.02047 1.0000 1.5000 2.0000 14.7 22.0 29.4 1499.1 1499.1 1499.1 2238.6 2238.7 2238.7 2.3351-4 3.5325-4 4.7100-4 28.969 28.969 28.969 0.3048 0.3047 0.3047 1.2906 1.2906 1.2907 745.2 745.2 745.2	44.1 58.8 88 1499.1 1499.1 1499 2238.7 2238.7 2238 7.0649-4 9.4199-4 1.4130 8 28.969 28.969 28.9 7 0.3046 0.3046 0.30 1.2907 1.2907 1.29	1.2 147.0 220.4 1.1 1499.2 1499.2 1.8 2238.8 2238.8 1-3 2.3549-3 3.5324-3 4 169 28.970 28.970 146 0.3045 0.3045 008 1.2908 1.2908	20.000 30.000 40.000 50.000 293.9 440.9 587.3 734.8 1499.2 1499.2 1499.2 1499.2 2238.8 2238.8 2238.8 2238.8 7098-3 7.0648-9 2197.3 1.1775-2 28.970 28.970 28.970 28.970 0.3045 0.3044 0.3044 0.3044 1.2909 1.2909 1.2909 1.2909 745.3 745.3 745.3 745.3
MOLE FRACTIONS AR C02 0.04201 H20 0.03974 N0 0.00107 ND2 0.00000 N2 0.76482 OH 0.00005 O2 0.14317	0.00914 0.00914 0.00914 0.04201 0.04201 0.04701 0.03974 0.03975 0.03975 0.00107 0.00107 0.00107 0.00000 0.00001 0.09001 0.76482 0.76482 0.76482 0.00005 0.09004 0.00004 0.14317 0.14317 0.14317	0.04201 0.04201 0.042 0.03975 0.03975 0.03975 0.00107 0.00107 0.001 0.00001 0.00001 0.000 0.76482 0.76482 0.764 0.00003 0.00003 0.000	0.04201 0.04201 0.03975 0.03976 0.00107 0.00107 0.00001 0.00002 0.76482 0.76482 0.00003 0.00002	0.00914 0.00914 0.00914 0.04201 0.04201 0.04201 0.04201 0.03976 0.03976 0.03976 0.03976 0.00107 0.00107 0.00107 0.00107 0.00002 0.00002 0.00003 0.00003 0.76482 0.76482 0.76482 0.76482 0.00002 0.00002 0.00002 0.00002 0.14316 0.14316 0.14316 0.14315
CASE= 4 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1701.0 T, DEG F 2602.0 RHO, G/CC 1.0377-4 M, MOL WT 28.969 CP, CAL/(G (K) 0.3194 GAMMA (S) 1.2743 SON VEL,M/SEC 788.7	36.6350 F/A: 0.02730 1,0000 1.5000 2.0000 14.7 22.0 29.4 1701.2 1701.4 1701.5 2602.5 2602.8 2602.8 28.969 28.969 28.970 0.3187 0.3184 0.3182 1.2749 1.2752 1.2753 789.0 789.1 789.2	44.1 58.8 98 1701.6 1701.6 1701.6 2 2603.1 2603.2 2603. 6 6.2245-4 8.2991-4 1.2448 0 28.970 28.970 28.9 0 21.799 0.3177 0.317 0 1.2756 1.2757 1.27	1.2 147.0 220.4 .7 1701.8 1701.9 1.4 2603.5 2603.7 1-3 2.0746-3 3.1118-3 4 170 28.970 28.971 75 0.3173 0.3172 1.2761 1.2762	20,000 30,000 40,000 50,000 293,9 440,9 587,8 734,8 1701,9 1702,0 1702,0 1702,0 2603,7 2603,8 2603,9 2603,9 1490-3 6,2233-3 8,2976-3 1,0372-2 26,971 28,971 28,971 28,971 0,3171 0,3169 0,3169 0,3168 1,2763 1,2764 1,2764 1,2765 789,5 789,6 789,6 789,6
MOLE FRACTIONS AR C0 0.00002 C02 0.05552 H20 0.05222 N0 0.00233 N02 0.00000 N2 0.75909 0 0.00002 OH 0.0002	0.00908 0.00908 0.00908 0.00001 0.00001 0.00001 0.05553 0.05553 0.05553 0.05255 0.05256 0.05253 0.00233 0.00233 0.00233 0.00001 0.00001 0.00001 0.75910 0.75911 0.75911 0.00002 0.00001 0.00001 0.00002 0.00001 0.00001 0.00024 0.00021 0.00020 0.12114 0.12115 0.12115	0.00001 0.00001 0.000 0.05553 0.05554 0.055 0.05258 0.05258 0.052 0.000233 0.00023 0.000 0.00001 0.00001 0.000 0.75912 0.75912 0.755 0.00001 0.00001 0.000 0.00001 0.00001 0.000	000 0 00000 0.00000 0554 0.05554 0.05554 0.559 0.05260 0.05261 0.0002 0.0002 0.0002 0.00002 0.0000 0.00002 0.0000 0.00000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00908 0.00908 0.00908 0.00908 0.00000 0.00000 0.00000 0.00000 0.05554 0.05554 0.05554 0.05554 0.05261 0.05262 0.05262 0.05263 0.00234 0.00234 0.00234 0.00000 0.00003 0.00003 0.00004 0.75913 0.75913 0.75913 0.75913 0.00000 0.00000 0.00000 0.00000 0.00011 0.00010 0.00000 0.00000 0.12116 0.12116 0.12115 0.12115

CASE= 5 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2516.5 T, DEG F 4070.1 RHO, G/CC 6.7815-5 M, MOL WT 28.008 CP, CAL/(G)(K) 0.8105 GAMMA (S) 1.1447 SON VEL,M/SEC 924.8	1.0000 1.5000 2 14.7 22.0 2553.4 2574.3 3 4136.5 4174.1 4 1.3405-4 1.9976-4 2.6 28.087 28.132 0.7555 0.7256	2,0000 3,0000 4,0000 29,4 44,1 58,1 2588,9 2608,8 2622,1 1200,2 4236,1 4260.5	88.2 147.0 220.4 5 2641.4 2664.2 2681.4 6 4294.9 4335.8 4366.4 7 .8270-4 1.2956-3 1.9334-2 28.275 28.323 28.35 8 0.6351 0.6059 0.584 7 1.1652 1.1698 1.1734	293.9 440.9 587.8 734.8 2693.1 2708.9 2719.6 2727.6 3 4387.9 4416.4 4435.6 4450.0 3 2.5688-3 3.8352-3 5.0976-3 6.3570-3 9 28.384 28.417 28.440 28.457 0.5694 0.5496 0.5362 0.5262 1 1.1761 1.1799 1.1826 1.1847
MOLE FRACTIONS AR 0.00841 C0 0.04530 C02 0.08938 H 0.00365 H02 0.00000 H2 0.00922 H20 0.11229 N0 0.00566 N2 0.70178 O 0.00245 OH 0.00529 02 0.01227	0.04268 0.04112 0 0.09237 0.09415 0 0.00289 2.00250 0 0.00000 0.00000 0 0.00842 0.00797 0 0.11423 0.11531 0 0.00566 0.00562 0 0.70377 0.70492 0 0.00194 0.00167 0 0.00081 0.00834 0	.00846	1 0.03575 0.03381 0.0323(5 0.10021 0.10239 0.1040(4 0.00149 0.00121 0.0010(5 0.00000 0.00000 0.0000(5 0.00553 0.00605 0.0056(7 0.11875 0.11989 0.1207(7 0.00567 0.7098 0.7109(7 0.00568 0.00077 0.0006(7 0.00568 0.00607 0.0056(0 0.03126 0.02984 0.02886 0.02812 0.10523 0.10681 0.10790 0.10871 0.00031 0.00076 0.00067 0.00061 0.00001 0.00001 0.00001 0.00001 0.00545 0.00513 0.00491 0.00475 0.12132 0.12210 0.12262 0.12300 0.00682 0.00461 0.00444 0.00431 0.71167 0.71261 0.71326 0.71375 0.00055 0.00045 0.00039 0.00034 0.00055 0.00045 0.00049 0.00425
CASE= 5 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2523.3 T, DEG F 4082.3 RHO. G/CC 6.7265-5 M, MOL HT 27,855 CP, CAL/I(G)I(K) 0.8008 GAMMA (S) 1.1463 SON VE; M/SEC 929.2	1.0000 1.5C00 4 14.7 22.0 2559.9 2580.4 4148.0 4185.1 4 1.3298-4 1.9819-4 2.0 27.937 27.977 0.7418 0.7096 0	506 PERCENT FUEL= 2.0000 3.0000 4.000 29.4 44.1 58.1 2594.6 2614.0 2627 1210.6 4245.5 4269 28.007 28.048 28.07. 0.6577 0.6580 0.637. 0.1598 1.1628 1.165. 944.8 949.2 952.	88.2 147.0 220.2 2645.2 2666.6 2682.6 3 4301.7 4340.1 4368.5 4 7.7712-4 1.2869-3 1.9212-5 5 28.114 28.158 28.19 5 0.6105 0.5780 0.5587 7 1.1699 1.1755 1.180	2 233,9 440,9 587,8 734,8 2692,9 2706,9 2716,1 2722,8 3 4387,6 4412,7 4429,3 4441,4 3 2,5535-3 3,8144-3 5,0721-3 6,3275-3 28,213 28,242 28,261 28,274 7 0,5373 0,5152 0,5005 0,4895 1,1835 1,1884 1,1920 1,1947
MOLE FRACTIONS AR C0 0.00834 C02 0.08653 H 0.00419 H2 0.01145 H20 0.11496 N0 0.069613 O 0.069613 O 0.00215 OH 0.00916	0.05097 0.04957 C 0.08928 0.09090 0 0.00333 0.00290 0 0.01063 0.01017 0 0.11700 0.11814 0 0.00476 0.00467 0 0.69813 0.69927 0 0.00167 0.00142 0 0.00831 0.00781 0	.00839 0.00840 0.0084 .04858 0.04719 0.0462 .09205 0.09364 0.0947 .00262 0.00226 0.0020 .00985 0.00941 0.0991 .11893 0.11999 0.1207 .00459 0.00445 0.0043 .70006 0.70116 0.7019 .00126 0.00106 0.0009 .00744 0.00692 0.0065	1 0.04486 0.04322 0.04191 0.09630 0.09816 0.09951 3 0.00174 0.00143 0.0012 2 0.00872 0.00826 0.00792 2 0.12170 0.12286 0.12372 4 0.00416 0.00389 0.00361 1 0.70295 0.70420 0.70514 3 0.00076 0.00059 0.00046 6 0.00603 0.00539 0.00481	8 0.04114 0.04002 0.03928 0.03874 7 0.10052 0.10178 0.10262 0.10323 8 0.00108 0.00091 0.00081 0.00073 9 0.10769 0.00740 0.00721 0.00707 1 0.12429 0.12505 0.12554 0.12591 1 0.00348 0.00322 0.00303 0.00288 1 0.70578 0.70664 0.70721 0.70763 2 0.00040 0.00025 0.00025 0.00023 3 0.00454 0.00406 0.00373 0.00349

```
CASE= 7 0/F= 48.8467
                               F/A= 0.02047 PERCENT FUEL= 2.0062 PHI= 0.3000
P, ATM
P, PSIA
                                                                 6.0000 10.000 15.000
                                                                                          20,000
                                                                                                   30,000
                                                                                                           40.000
               0.5000
                       1.0000
                                1.5000
                                        2.0000 3.0000
                                                         4.0000
                                                                                                                   50,000
                                 . 22.0
                                        29.4
                                                 44.1
                                                         58.8
                                                                 88.2
                                                                                  220.4
                                                                                           293.9
                                                                                                   440.9
                                                                                                            587.8
                                                                                                                    734.8
                         14.7
                                                                         147.0
               1796.2
                                        1797.2
                                                        1797.5
T, DEG K
                       1796.8
                               17 77.0
                                               1797.4
                                                                 1797.6
                                                                         1797.8
                                                                                1797.9
                                                                                          1798.0
                                                                                                   1798.1
                                                                                                           1798.1
                                                                                                                   1798.2
T, DEG F
               2773.5
                       2774.5
                               2774.9
                                        2775.2
                                               2775.5 2775.8 2776.0
                                                                         2776.3
                                                                                  2776.5
                                                                                          2776.7
                                                                                                   2776.8
                                                                                                           2776.9
                                                                                                                   2777.0
RHO, G/CC
             9.8256-5 1.9646-4 2.9466-4 3.9285-4 5.8922-4 7.8558-4 1.1783-3 1.9636-3 2.9453-3 3.9269-3 5.8902-3 7.8534-3 9.8165-3
                       28.966
                               28,966
M, MOL WT
               28,965
                                        28,967
                                                 28,967
                                                         28.967
                                                                 28,968
                                                                         28.968
                                                                                  28,968
                                                                                          28.968
                                                                                                   28.969
                                                                                                           28,969
CP, CAL/(G)(K)
             0.3225
                       0.3213
                                0.3207
                                        0.3203
                                                0.3199
                                                        0.3196
                                                                 0.3192
                                                                         0.3189
                                                                                  0.3186
                                                                                          0.3185
                                                                                                   0.3183
                                                                                                           0.3181
                                                                                                                   0.3180
               1,2717
                       1.2726
                                1,2731
                                        1,2734
                                                1,2738
                                                        1.2740
                                                                 1.2743
                                                                         1.2746
                                                                                  1.2748
GAMMA (S)
                                                                                          1.2749
                                                                                                   1.2751
                                                                                                           1.2752
                                                                                                                   1.2753
SON VEL , M/SEC
              809.7
                        810.2
                                 810.4
                                         810.5
                                                 810.6
                                                          810.7
                                                                 810.9
                                                                                   811.1
                                                                          811.0
                                                                                           811.1
                                                                                                   811.2
                                                                                                            811.2
                                                                                                                    811.3
MOLE FRACTIONS
              0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914
AR
                                                                                                          0.00914
                                                                                                                  0.00914
CO
              0.00003 0.00002
                              0.00002 0.00002
                                              0.00001 0.00001 0.00001 0.00001 0.00001 0.00000
                                                                                                 0.00000 0.00000 0.00000
0.02
              0.04197 0.04198 0.04198 0.04199 0.04199 0.04199 0.04200 0.04200 0.04200 0.04200
                                                                                                 0.04200 0.04200
                                                                                                                 0.04200
H2
              0.00001 0.00001 0.00000 0.00000
                                              0.00000 0.60000 0.00000 0.00000
                                                                                0.00000 0.00000 0.00000 0.00000
                                                                                                                 0.00000
H20
              0.03952 0.03956 0.03958 0.03959
                                               0.03961 0.03962 0.03963 0.03965
                                                                                 0.03966 0.03967
                                                                                                 0.03968 0.03968
                                                                                                                  0.03969
              0.00355 0.00355 0.00356 0.00356
                                               0.00356 0.00356
NO
                                                               0.00356
                                                                        0.00357
                                                                                 0.00357 0.00357
                                                                                                 0.00357 0.00357
                                                                                                                  0.00357
N02
              0.00000 0.00001 0.00001 0.00001
                                               0.00001 0.00001
                                                               0.00002
                                                                        0.00002
                                                                                 0.00003 0.00003
                                                                                                 0.00004 0.00004
                                                                                                                  0.00005
                                                                                         0.76354
N2
              0.76346 0.76348
                              0.76349 0.76350
                                               0.76351 0.76351 0.76352
                                                                        0.76353
                                                                                 0.76353
                                                                                                 0.76354
                                                                                                         0.76354
                                                                                                                  0.76354
0
              0.00006 0.00004 0.00004 0.00003
                                               0.00003 0.00002 0.00002
                                                                        0.00001
                                                                                 0.00001 0.00001
                                                                                                 0.00001
                                                                                                          0.00001
                                                                                                                  0.00001
              0.00047 0.00039 0.00036 0.00033
                                                                                0.00020
OH
                                               0.00030 0.00028
                                                               0.00025
                                                                        0.00022
                                                                                        0.00019 0.00017 0.00016
                                                                                                                  0.00015
              0.14179 0.14182 0.14183 0.14183 0.14184 0.14184 0.14185 0.14185 0.14185 0.14185 0.14185
                                                                                                          0.14185
   CASE= 7 0/F= 36.6350
                               F/A= 0.02730 PERCENT FUEL= 2.6571 PHI= 0.4000
P, ATM
               0.5000 1.0000
                              1.5000 2.0000
                                                3.0000 4.0000
                                                                 6.0000 10.000 15.000
                                                                                          20,000
                                                                                                   30,000
                                                                                                           40.000
                                                                                                                   50,000
                                        29.4
P, PSIA
               7.3
                       14.7
                                 22.0
                                                 44.1
                                                           58.8
                                                                 88.2
                                                                          147.0
                                                                                  220.4
                                                                                          293.9
                                                                                                    440.9
                                                                                                            587.8
                                                                                                                  734.8
                                                                 1985.4
                                                                         1986.0
                                                                                          1936.7
T, DEG K
               1980.0
                       1982.0
                               1983.0
                                        1983.6
                                                1984.3
                                                         1984.8
                                                                                 1986.4
                                                                                                   1987.0
                                                                                                           1987.2
             3104,3
                                                         3112.9
T, DEG F
                       3107.9
                               3109.6
                                        3110.7
                                                3112.1
                                                                 3114.0
                                                                         3115.1
                                                                                  3115.9
                                                                                          3116.4
                                                                                                   3117.0
                                                                                                           3117.3
RHO, G/CC
             8.9100-5 1.7804-4 2.6695-4 3.5585-4 5.3360-4 7.1132-4 1.0667-3 1.7774-3 2.6655-3 3.5537-3 5.3297-3 7.1056-3 8.8815-3
M, MOL WT 28.952 28.957
                                28,958
                                        28,960
                                                28,961 28,962
                                                                 28.963
                                                                         28,965
                                                                                  28,966
                                                                                          28.966
                                                                                                   28,967
                                                                                                           28,967
                                                                                                                   28.968
CP, CAL/(G)(K) 0.3468
                       0.3424
                                0.3403
                                        0.3390
                                                 0.3375
                                                         0.3365
                                                                 0.3353
                                                                         0.3340
                                                                                  0.3331
                                                                                          0.3326
                                                                                                   0.3319
                                                                                                           0.3315
                                                                                                                   0.3312
GAMMA (S) 1.2516
SON VEL, M/SEC 843.6
                       1.2544
                               1.2558
                                        1.2567
                                                1,2578
                                                         1.2584
                                                                 1.2593
                                                                         1.2602
                                                                                  1.2608
                                                                                          1.2612
                                                                                                   1.2616
                                                                                                           1,2619
                                                                                                                   1.2622
                        844.9
                                845.6
                                         846.0
                                                 846.5
                                                          846.8
                                                                  847.2
                                                                          847.6
                                                                                   847.9
                                                                                           848.1
                                                                                                    848.3
                                                                                                            848.4
                                                                                                                    848.5
MOLE FRACTIONS
AR
              0.00907 0.00907 0.00907 0.00907 0.00907 0.00907 0.00907
                                                                                0.00908 0.00908
                                                                                                 0.00908 0.00908 0.00908
CO
              0.00025 0.00018
                              0.00015
                                      0.00013
                                               0.00011 0.00009
                                                               0.00008 0.00006
                                                                                 0.00005 0.00004
                                                                                                 0.00003 0.00003
                                                                                                                 0.00003
C02
              0.05526 0.05533 0.05537 0.05539
                                              0.05542 0.05543 0.05545 0.05547
                                                                                 0.05548 0.05549
                                                                                                 0.05550 0.05551
                                                                                                                  0.05551
              0.00001 0.00001 0.00001 0.00031
                                               0.0000,0 0.00000 0.00000 0.00000
                                                                                0.00000 0.00000
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                                                                                                                  0.00000
              0.00000 0.00000
                              0.00000 0.00000
                                               0.00000 0.00000
                                                               0.00000
                                                                        0.00000
                                                                                 0.00000 0.00001
                                                                                                  0.00001 0.00001
                                                                                                                  0.00001
              0.00005 6.00004
                               0.00003 0.00003
                                                                                                                  0.00001
H2
                                               0.00002 0.00002 0.00002
                                                                        0.00001
                                                                                 0.00001 0.00001
                                                                                                  0.00001 0.00001
H20
              0.05188 0.05201
                               0.05207 0.05211
                                               0.05217 0.05220
                                                               0.05225 0.05230
                                                                                 0.05234 0.05236
                                                                                                  0.05239 0.05241
                                                                                                                  0.05243
NO
              0.00568 0.00571
                               0.00573 0.00574
                                               0.00575 0.00576
                                                               0.00577 0.00578
                                                                                 0.00579 0.00579
                                                                                                 0.00580 0.00580
                                                                                                                  0.00580
N02
              0.00001 0.00001 0.00001 0.00001
                                               0.00001 0.00001 0.00002 0.00002
                                                                                 0.00003 0.00003
                                                                                                 0.00004 0.00005
                                                                                                                 0.00005
              0.75699 0.75708
                                               0.75718 0.75720 0.75722 0.75725
                                                                                                                 0.75731
N2
                              0.75712 0.75715
                                                                                 0.75727 0.75728
                                                                                                 0.75729 0.75730
0
              0.00028 0.00020 0.00016 0.00014 0.00012 0.00010 0.00008 0.00007
                                                                                                 0.00004 0.00003 0.00003
                                                                                0.00005 0.00005
OH
             0.00141 0.00120 0.00109 0.00101 0.00092 0.00086 0.00078 0.00069 0.00062 0.00058 0.00053 0.00049 0.00046
02
              0.11912 0.11917 0.11919 0.11921 0.11923 0.11924 0.11925 0.11927 0.11928 0.11929 0.11929 0.11929 0.11929
```

CASE= 1 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F= 0.5000 7.3 1478.4 2201.4 1.1941-4 28.973 0.3106 1.2836 738.0	29.3080 1.0000 14.7 1478.5 2201.5 2.3882-4 28.973 0.3104 1.2837 738.0	F/A= 0. 1.5000 22.0 1478.5 2201.6 3.5822-4 28.973 0.3104 1.2838 738.0	03412 2.0000 29.4 1478.5 2201.6 4.776.3-4 28.973 0.3103 1.2838 738.0	PERCENT 3.0000	FUEL = 3, 4.0000 58.8 1478.5 2201.6 9.5524-4 28.973 0.3103 1.2839 738.1	6.0000 88.2 1478.5 2201.7	PHI= 0.500 10.000 147.0 1478.5 2201.7 2.3880-3 28.973 0.3102 1.2839 738.1	0 15.000 220.4 1478.6 2201.7 3.5821-3 28.973 0.3101 1.2840 738.1	20.000 293.9 1478.6 2201.7 4.7761-3 28.973 0.3101 1.2840 738.1	30.000 440.9 1478.6 2201.7 7.1641-3 28.973 0.3101 1.2840 738.1	40.000 587.8 1478.6 2201.7 9.5521-3 28.973 0.3101 1.2840 738.1	50.000 734.8 1478.6 2201.7 1.1940-2 28.973 0.3101 1.2840 738.1
MOLE FRACTIONS AR CO2 H2O NO NO2 N2 OH	0.00902 0.06890 0.06538 0.00081 0.00000 0.75494 0.00005 0.10090	0.00902 0.06890 0.06539 0.00081 0.00000 0.75494 0.00004 0.10090	0.00902 0.06890 0.06539 0.00081 0.00000 0.75494 0.00004 0.10090	0.00902 0.06690 0.06539 0.00081 0.00000 0.75494 0.00004 6.10090	0.00902 0.06890 0.06539 0.00081 0.00001 0.75494 0.00003 0.10090	0.00902 0.06890 9.06539 0.00081 0.00001 0.75494 0.00003 0.10090	0.00902 0.06890 0.06540 0.00081 0.00001 0.75494 0.00003 0.10090	0.00902 0.06890 0.06540 0.00081 0.00001 0.75494 0.00003 0.10090	0.00902 0.06890 0.06540 0.00081 0.00001 0.75494 0.00002 0.10090	0.00902 0.06890 0.06540 0.00081 0.00001 0.75494 0.00002 0.10089	0.00902 0.06890 0.06540 0.00081 0.00002 0.75494 0.00002 0.10089	0.00902 0.06890 0.06540 0.00081 0.00002 0.75494 0.00002 0.10089	0.00902 0.06890 0.06540 0.00081 0.00002 0.75494 0.00002 0.10089
CASE= 1 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0.5000 7.3 1674.8 2554.9	24,4233 1,0000 14,7 1675.0 2555.4 2,1079-4 28,973 0,3238 1,2694 781,1	F/A: 0. 1.5000 22.0 1675.2 2555.6 3.1616.4 28.973 0.3234 1.2696 781.2	2,0000 29.4 1675.2 2555.7	PERCENT ! 3.0000	4.0000 58.8 1675.4 2556.0	6.0000 88.2 1675.5 2556.2	PHI= 0.600 10.000 147.0 1675.6 2556.3 2.1073-3 28.974 0.3224 1.2705 781.6	15.000 220.4 1675.6 2556.4	20.000 293.9 1675.7 2556.5 4.2144-3 28.974 0.3222 1.2707 781.7	30.000 440.9 1675.7 2556.6 6.3215-3 28.974 0.3221 1.2708 781.7	40.000 587.8 1675.7 2556.6 8.4286-3 28.974 0.3220 1.2708 781.7	50.000 734.8 1675.8 2556.7 1.0536-2 28.974 0.3219 1.2709 781.7
MOLE FRACTIONS AR CO CO2 H2 H20 N0 N02 N2 O OH	0.00896 0.00002 0.08206 0.00001 0.07784 0.00170 0.00000 0.74953 0.00001 0.00026 0.07961	0.00896 0.00001 0.08207 0.00000 0.07786 0.00170 0.00000 0.74954 6.00001 0.00022 0.07962	0.00896 0.00001 0.08207 0.00000 0.07788 0.00170 0.00000 0.74955 0.00001 0.00020 0.07962	0.00896 0.00001 0.08207 0.00000 0.07788 0.00170 0.00030 0.74955 0.00001 0.00018 0.07963	0.00896 0.00001 0.08208 0.00000 0.07789 0.00170 0.00001 0.74956 0.00001 0.00017	0.00896 0.00001 0.08208 0.00000 0.07790 0.00170 0.00001 0.74956 0.00000 0.00015	0.00896 0.00001 0.08208 0.00000 0.07791 0.00170 0.00001 0.74956 0.00000 0.00014 0.07963	0.00896 0.00000 0.08208 0.00000 0.07792 0.00170 0.00001 0.74956 0.00000 0.00012	0.00896 0.00000 0.08208 0.00000 0.07792 0.00170 0.00001 0.74957 0.00000 0.00011 0.07963	0.00896 0.00000 0.08208 0.00000 0.07793 0.00170 0.00001 0.74957 0.00000 0.00010 0.07963	0.00896 0.00000 0.08208 0.00000 0.07793 0.00170 0.00002 0.74957 0.00000 0.00009 0.07963	0.00896 0.00000 0.08208 0.00000 0.07794 0.00170 0.00002 0.74957 0.00000 0.00009 0.07963	0.00896 0.00000 0.08208 0.00000 0.07794 0.00170 0.00002 0.74957 0.00000 0.00008 0.07963

CASE = 2 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2294.6 T, DEG F 3670.5 RHO, G/CC 7.4508-5 M, MOL WT 28.058 CP, CAL/(G)(K) 0.4870 GAMMA (S) 1.1947 SON VEL,M/SEC 901.3	12.7426 F/A= 0. 1.0000 1.5000 14.7 22.0 2308.2 2314.7 3695.1 3706.8 1.4329-4 2.2191-4 28.086 28.099 0.4492 0.4311 1.2067 1.2133 908.0 911.6	.07848 PERCENT 2.0000 3.0000 29.4 44.1 2318.7 2323.6 3714.0 3722.6 2.9545-4 4.4240-4 28.108 26.118 0.4199 0.4065 1.2176 1.2233 913.9 916.6	4,0000 6,0000 58.8 88.2 2326.6 2330.2 3728.2 3734.6 5.8924-4 8.8274-4 28.124 28.131 0.3984 0.3889 1.2269 1.2314	147.0 220.4 2333.7 2336.0 3741.0 3745.1 1.4694-3 2.2022-3 28.138 28.143 0.3793 0.3734 1,2361 1.2392	293.9 2337.4 2747.6 3747.6 3.9349-3 28.145 0.3699 0.3699	30.000 40.000 50.000 440.9 587.8 734.8 2339.0 2339.9 2340.6 3750.4 3752.1 3753.3 3999-3 5.8645-3 7.3289-3 28.149 28.150 28.152 0.3659 0.3635 0.3619 1.2434 1.2447 926.8 927.5 927.9
MOLE FRACTIONS AR C0 0.00837 C0 0.04888 C02 0.09793 H 0.00141 H2 0.01139 H20 0.12632 N0 0.00106 N2 0.70088 0 0.00021 OH 0.00099	0.09885 0.09928 0.00106 0.00089 0.01110 0.01097 0.12720 0.12763 0.00086 0.09075 0.70168 0.70207 0.00013 0.00009 0.00202 0.00*74	0.00839 0.0083 0.04753 0.04727 0.09954 0.0938 0.00078 0.00065 0.01089 0.0107 0.12789 0.1282 0.00668 0.00056 0.70231 0.7026 0.00007 0.00005 0.00155 0.00132 0.00037 0.00032	0.04711 0.04593 0.10004 0.10026 0.60057 0.00047 0.01074 0.01067 0.12842 0.12866 0.00052 0.00044 0.70279 0.70301 0.00004 0.00003 0.00117 0.00098	0.04676 0.04665 0.10047 0.10060 0.00037 0.00031 0.01061 0.01057 0.12891 0.12907 0.00035 0.00029 0.70324 0.70338 0.00002 0.00001 0.00078 0.00065	0.04659 0. 0.10068 0. 0.00027 0. 0.01055 0. 0.12917 0. 0.00026 0. 0.70347 0. 0.00001 0. 0.00057 0.	.00840 0.00840 0.00840 .04651 0.04647 0.04644 .10077 0.10082 0.10085 .00022 0.00019 0.00017 .01053 0.01051 0.01050 .12928 0.12935 0.12940 .00021 0.00019 0.00017 .70357 0.70363 0.70367 .00001 0.00000 0.00000 .00047 0.00041 0.00037 .00003 0.00003 0.00002
CASE = 2 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2268.0 T, DEG F 3622.7 RHO, G/CC 7.4780-5 M, MOL WT 27.834 CP, CAL/(GI(KI 0.4391 GANMA ISI 1.2123 SON VEL,M/SEC 906.3	12.2117 F/A= 0 1.0000 1.5000 14.7 22.0 2277.4 2281.7 3639.6 3647.4 1.4905-4 2.2322-4 27.854 27.862 0.4126 0.4007 1.2229 1.2282 911.8 914.5	2.0000 3.0000 29.4 44.1 2284.3 2287.4 3652.1 3657.7	58.4 4.0000 6.0000 58.8 88.2 2289.3 2291.6 3665.1 3665.1 5.9361-4 8.8969-4 27.878 27.878 27.878 1.3802 0.3744 1.2381 1.2412	147.0 220.4 2293.8 2295.2 3669.2 3671.7 1.4816-3 2.2213-3 27.887 27.890 0.3687 0.3651 1.2444 1.2464	293.9 2236.1 2 3673.2 3 2.9608-3 4.4 27.892 2 0.3630 0 1.2476 1	30.000 46.000 50.000 440.9 587.8 734.8 2297.1 2297.7 2298.1 3675.0 3676.1 3676.9 4396-3 5.9181-3 7.3966-3 27.894 27.895 27.896 0.3605 0.3591 0.3591 0.2408 925.2 925.5

CASE= 4 0/F P, ATM 0.5000 P, PSIA 7. T, DEG K 1888. T, DEG F 2939.(RHO, G/CC 9.3464-F M, MOL WT 28.96. CP, CAL/(G)(K) 0.339; GAMMA (S) 1.2566 SON VEL,M/SEC 825.	3 14.7 22.0 1889.3 1889.9 0 2941.1 2942.1 5 1.8683-4 2.8017-4 2 28.964 28.965 2 0.3364 0.3351 5 1.2586 1.2595	03412 PERCENT 2,0000 3,0000 1890,3 1890,7 2942,8 2943,6 3,7349-4 5,6012-4 28,966 28,967 0,3343 0,333 1,2601 1,2606 826,9 827,2	4.0000 58.8 1891.0 2944.1 7.4674-4 1.28.967 0.3326	6.0000 10.000 88.2 147.0 1891.3 1891.7 2944.7 2945.4	0 15.000 220.4 1892.0 2945.9 2.7990-3 28.970 0.3305 1.2628 828.1	20.000 293.9 1892.1 2946.2 3.7317-3 28.970 0.3301 1.2631 828.2	30.000 440.9 1892.3 2946.5 5.5971-3 28.979 0.3297 1.2634 828.3	40.000 50.000 587.8 734.8 1892.5 1892.6 2946.8 2946.9 7.4623-3 9.3275-3 28.971 28.971 0.3294 0.3292 1.2636 1.2638 828.4 828.5	3
MOLE FRACTIONS AR 0.0090 C0 0.00019 C02 0.0687 H 0.0000 H2 0.00001 H20 0.06481 N0 0.0039 N02 0.0000 N2 0.7530 0 0.0001 0H 0.00091 02 0.0091	5 0.0011 0.00009 3 0.06877 0.06880 0.00000 0.00000 3 0.0002 0.00002 5 0.00397 0.06501 5 0.00397 0.00398 0 0.00001 0.00001 3 0.75313 0.75316 2 0.00009 0.00071	0.00902 0.00902 0.00098 0.00006 0.06881 0.06883 0.00000 0.00000 0.06504 0.06508 0.00398 0.00398 0.00398 0.00398 0.00001 0.00001 0.75318 0.75326 0.00067 0.00066 0.00394 0.09314	0.00005 0.06883 0.00000 0.00001 0.06510 0.00399 0.00001 0.75321 0.00004 0.00056	0.00902 0.00902 0.00004 0.00003 0.06885 0.06886 0.00000 0.00000 0.00000 0.00000 0.0051 0.00517 0.75322 0.75324 0.00004 0.00003 0.00005 0.00045 0.09917 0.09918	0.06887 0.00000 0.00001 0.06519 0.00400 0.75325 0.00002 0.0002	0.00902 0.00002 0.06887 0.00000 0.00001 0.06521 0.00400 0.00002 0.75326 0.00002 0.00003 0.00038	0.00902 0.00002 0.00008 0.00000 0.00000 0.06523 0.00401 0.00003 0.75327 0.00002 0.00034 0.09919	0.00902 0.00902 0.00002 0.00002 0.06888 0.00000 0.00000 0.00000 0.00000 0.05524 0.06525 0.00401 0.00401 0.00003 0.00004 0.75327 0.75327 0.00001 0.00001 0.00032 0.00030 0.09919 0.09919	2 3 3 5 1 4 7
CASE= 4 0/F P, ATM 0,5000 P, PSIA 7. T, DEG K 2057. T, DEG F 3243. RHO, G/CC 8.5706- M, MOL WT 28.93 CP, CAL/(G)(K) 0.373 GAMMA (S) 1.233 SON VEL,M/SEC 854.0	1.0000 1.5C00 3 14.7 22.0 3 2061.3 2063.2 4 3250.6 3254.0 5 1.7113-4 2.5650-4 7 28.945 28.949 8 0.3650 0.3660 8 1.2386 1.2410	04094 PERCENT 2.0000 3.0000 29.4 44.1 2064.4 2065.6 3256.1 3258.6 3258.1 5.1242-4 28.952 28.955 0.3582 0.3550 1.2425 1.2444 858.2 859.2	4.0000 58.8 2066.8 3260.5 6.8297-4 1. 28.957 0.3531 1.2455	6.0000 10.000 88.2 147.0 2067.9 2069.2 3262.6 3264.8	15,000 220,4 2070,0 3266,3	20.000 233.9 2070.5 3267.2 3.4096-3 28.964 0.3454 1.2503 862.0	30.000 440.9 2071.2 3268.4 5.1130-3 28.966 0.3441 1.2511 862.4	40.000 50.000 587.8 734.8 2071.6 2071.9 3269.1 3269.7 6.8162-3 8.5193-3 28.967 28.967 0.3433 0.3427 1.2516 1.2520 862.7 862.9	3 7 3 7 7
MOLE FRACTIONS AR 0.00899	5 0.00895 0.00895	0.00895 0.00895	0.00895 0						

CASE= 5 0/F P, ATM 0.500 P, PS1A 7. T, DEG K 2524. T, DEG F 4084. RHO, G/CC 6.6838= M, MOL WT 27.69 CP, CAL//IGI/K) 0.771 GAMMA IS) 1.150 SON VEL,M/SEC 933.	0 1.0000 1. 14.7 8 2559.9 25 9 4148.1 41 5 1.3219-4 1.97 4 27.769 27 1 0.7078 0.	5000 2.0000 22.0 29.4 79.4 2592.7 83.3 4207.2	PERCENT FUEL= 3.0000 4.000 44.1 58. 2610.7 2622. 4239.5 4261. 3.9036-4 5.1855- 27.875 27.90 0.6177 0.596 1.1698 1.173 954.4 957.	0 6.0000 8 88.2 8 2638.9 2 4290.2 4 7.7401-4 1 0 27.934 1 0.5672 4 1.1787	II = 1,1500 10,000 15,0 147 0 220 2657,4 2670 4323,7 4347 .2828-3 1,9164 27,972 27,9 0,5335 0,50 1,1856 1,19 967,8 972	0.4 293.9 0.8 2679.5 .7 4363.3 1-3 2.5485-3 999 28.017 0.4927 114 1.1955	30.000 440.9 2690.6 4383.3 3.8101-3 28.040 0.4718 1.2012 979.0	40.000 50.000 587.8 734.8 2697.7 2702.7 4396.1 4405.2 5.0693-3 6.3271-3 28.054 28.064 0.4583 0.4487 1.2053 1.2083 981.6 983.6
MOLE FRACTIONS AR CO2 0.0618 CO2 0.0830 H 0.0046 H2 0.0114 H20 0.1172 NO 0.0040 N2 0.6903 O 0.0018 OH 0.0084	1 0.05981 0.0 9 0.08549 0.0 8 0.01328 0.0 3 0.11932 0.1 5 0.00387 0.0 0.69224 0.6 1 0.00136 0.0 8 0.00759 0.0	0830 0.00831 5864 0.05792 8687 0.08763 0324 0.00293 1284 0.01254 2048 0.12127 9333 C.69409 0114 0.00099 0705 0.00666 0438 0.00394	0.00832 0.0083 0.05670 0.0559 0.08915 0.0020 0.00253 0.0022 0.01213 0.0118 0.12234 0.1230 0.00344 0.0033 0.69512 0.6958 0.00061 0.0007 0.00612 0.0057	2 0.05487 5 0.09128 6 0.00195 6 0.01150 7 0.12401 0 0.00308 2 0.69676 0 0.00056 0 0.00519	0.00835 0.008 0.05365 0.052 0.09271 0.093 0.00160 0.001 0.1109 0.016 0.12512 0.125 0.00279 0.002 0.69786 0.6978 0.00041 0.006 0.00453 0.004	275 0.05217 175 0.09442 136 0.00120 180 0.01061 192 0.12644 154 0.00237 164 0.00237 165 0.0026 102 0.00368	0.00837 0.05143 0.09529 0.00101 0.01038 0.12711 0.00212 0.69989 0.00020 0.00322 0.00099	0.00837 0.00838 0.05095 0.05061 0.09584 0.09623 0.00090 0.00081 0.101023 0.01013 0.12754 0.12785 0.00194 0.00181 0.70034 0.70066 0.00016 0.00014 0.0029 0.00269 0.00081 0.00070
CASE= 5 0/F								
CASE= 5 O/F P, ATM 0.500 P, PSIA 7. T, DEG K 2520. T, DEG F 4077. RHO, G/CC 6.6535- M, MOL NT 27.52 CP, CAL/(G/IK) 0.725 GAMMA (S) 1.155 SON VEL,M/SEC 938.	0 1.0000 1. 3 14.7 7 2553.5 25 6 4136.5 41 5 1.3169-4 1.96 5 27.593 27 2 0.6593 0. 8 1.1644 1.	5000 2.0000 22.0 29.4 71.2 2583.2 68.5 4190.0	PERCENT FUEL= 3.0000 4.000 44.1 58. 2599.0 2609. 4218.5 4237. 3.8948-4 5.1763- 27.688 27.70 0.5680 0.546 1.1798 1.184 959.6 962.	0 6.0000 88.2 4 2623.0 3 4261.8 4 7.7320-4 1 9 27.737 9 0.5194 1 1.1903	II = 1,2000 10,000 15,0 147,0 220 2638.2 2648 4289.1 4308 .2827-3 1.9178 27,768 27,7 0.4885 0.46 1,1982 1,20 972.9 977	293.9 3.8 2635.4 3.1 4320.1 3-3 2.5519-3 790 27.8536 571 0.4536 1.2086	30.000 440.9 2663.8 4335.1 3.8182-3 27.820 0.4367 1.2143 983.2	40.000 50.000 587.8 734.8 2668.9 2672.6 4344.4 4350.9 5.0830-3 6.3468-3 27.830 27.837 0.4262 0.4189 1,2181 1.2209 985.5 987.2

CASE= 7 P. ATM P. PSIA T. DEG K T. DEG K T. DEG C M. MOL WT CP. CAL/IG)(K) GAMMA (S) SON VEL,M/SEC	7 0/F= 0.5000 7.3 2142.9 3397.6 8.2221-5 28.916 0.3896 1.2263 869.3	29.3080 1.0000 14.7 2148.8 3408.1 1.6406-4 28.928 0.3774 1.2322 872.4	F/A= 0 1.5000 22.0 2151.6 3413.2 2.4582-4 28.934 0.3716 1.2352 873.9	2.0000 29.4 2153.4 3416.5	PERCENT F 3.0000 44.1 2155.7 3420.5 4.9087-4 28.943 0.3635 1.2396 876.1	4.0000 58.8 2157.1 3423.0	2995 P 6.0000 88.2 2158.8 3426.2 9.8052-4 28.949 0.3574 1.2430 877.9	HI= 0.500 10.000 147.0 2160.7 3429.6 1.6330-3 28.953 0.3538 1.2451 879.0	15.000 220.4 2162.0 3431.8	20.000 293.9 2162.8 3433.3 3.2634-3 28.957 0.3499 1.2474 880.1	30.000 440.9 2163.8 3435.1 4.8932-3 28.960 0.3481 1.2485 880.7	40.000 587.8 2164.4 3436.2 6.5227-3 28.961 0.3470 1.2492 881.0	50.000 734.8 2164.8 3437.0 8.1520-3 28.962 0.3462 1.2497 881.3
MOLE FRACTIONS AR CO CO2 H02 H2 H20 N0 N0 N02 N2 0 OH O2	0.00900 0.00122 0.06755 0.00009 0.00000 0.00023 0.06345 0.00774 0.00000 0.74999 0.00082 0.00313 0.09680	0.00900 0.00900 0.06789 0.00005 0.00001 0.06376 0.00785 0.00001 0.75026 0.00060 0.00270 0.09680	0.00901 0.00076 0.06805 0.00004 0.00000 0.005392 0.00790 0.00750 0.75058 0.00050 0.00247 0.09681	0.00901 0.00066 0.06815 0.00003 0.000012 0.06403 0.00794 0.00001 0.75046 0.00044 0.00232 0.09682	0.00901 0.00055 0.06828 0.00003 0.00001 0.00010 0.06417 0.00798 0.00001 0.75056 0.00036 0.00031 0.09683	0.00901 0.00048 0.06835 0.60002 0.00001 0.00009 0.06425 0.00800 0.00001 0.75063 0.00032 0.00199 0.09684	0.00901 0.00040 0.06845 0.00002 0.00001 0.000437 0.00604 0.00002 0.75070 0.00026 0.00181 0.09685	0.00901 0.00031 0.06854 0.00001 0.00001 0.00006 0.06450 0.00002 0.75079 0.00021 0.00161 0.09687	0.00901 0.00026 0.06860 0.00001 0.00001 0.00005 0.06459 0.00010 0.00003 0.75084 0.00017 0.00146 0.09688	0.00901 0.00023 0.06864 0.00001 0.00001 0.00040 0.06464 0.00812 0.00003 0.75087 0.00015 0.00136	0.00901 0.00019 0.06868 0.00000 0.00001 0.00003 0.06472 0.00813 0.00004 0.75092 0.00012 0.00124 0.09690	0.00901 0.00016 0.06871 0.00000 0.00001 0.00003 0.06477 0.00815 0.00004 0.75094 0.00011 0.00116 0.09691	0.00901 0.00015 0.06873 0.00000 0.00001 0.00003 0.06480 0.00816 0.00005 0.75096 0.00009
CASE= 7 P, ATM P, PSIA	7 0/F= 0.5000 7.3	24.4233 1.0000 14.7	F/A= 0 1.5000 22.0	2.0000 29.4	PERCENT F 3.0000 44.1	UEL= 3 4.0000 58.8	.9334 P 6.0000 88.2	PHI= 0.600 10.000 147.0	15.000 220.4	20.000 293.9	30.000 440.9	40,000 587,8	50,000 734.8
T. DEG K T. DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	2278.7 3641.9 7.7108-5 28.836 0.4621 1.1982 887.3	2291.6 3665.1	2298.1 3676.9 2.2971-4 28.678 0.4243 1.2110 895.1	2302.3 3684.4 3.0581-4 28.887 0.4163 1.2140 896.9	2307.6 3694.0 4.5784-4 28.898 0.4063 1.2180 899.3	2311.0 3700.1	2315.2 3707.7 9.1318-4 28.915 0.3921 1.2241 902.7	2319.9 3716.1	2323.0 3721.7	2325.0 3725.3	2327.5 3729.8	2329.0 3732.6	2330.1 3734.5 7.5696-3 28.947 0.3656 1.2368 909.8

P, ATM 0.50	00 1.0000 1.5000 .3 14.7 22.0 .6 1858.7 1859.3 .0 2886.0 2887.0 -5 1.8393-4 2.8482-4 .6 28.968 28.969 36 0.3407 0.3394 24 1.2543 1.2553	29.4 44.1 1859.6 1860.0 8 2887.6 2888.4 3 3.7970-4 5.6944-4 28.970 28.971 4 0.3386 0.3375 3 1.2559 1.2566	4.0000 6.0000 58.8 88.2 1860.3 1860.6 2888.8 2889.4 7.5915-4 1.1386-3 28.971 28.972 0.3369 0.3361 1.2570 1.2576	HI= 0.7000 10.000 15.000 147.0 220.4 1861.0 1861.2 2890.1 2890.5 1.8973-3 2.8456-3 28.973 28.973 0.3353 0.3347 1.2582 1.2586 819.7 819.9	20.000 30.000 293.9 440.5 1861.4 1861.6 2890.8 2891.3 7,7939-3 5.6903- 28.973 28.97 0.3344 0.3341 1.2588 1.259 820.0 820.5	9 587.8 734.8 1861.7 1861.8 1 2891.3 2891.5 3 7.5867-3 9.4830-3 4 28.974 28.974 28.974 28.974 1 0.3337 0.335 1 1.2593 1.2595
MOLE FRACTIONS AR 0.008 C0 0.094 H 0.000 H2 0.000 H20 0.089 N0 0.002 N02 0.000 N2 0.743 0 0.002 OH 0.000 OH 0.000 OH 0.000	20 0.0014 0.00012 87 0.0943 0.0949 81 0.0000 0.0000 91 0.0000 0.0000 91 0.0899 0.0900 95 0.00276 0.09276 90 0.0000 0.0000 95 0.74400 0.7440 91 0.0005 0.00026 91 0.0005 0.00026	2 0.0010 0.00008 0.09498 0.09500 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00276 0.00277 0.00000 0.00000 0.74405 0.74407 0.00004 0.00003 0.00058 0.00052	0.00067 0.00006 0.09501 0.09503 0.60000 0.00000 0.00002 0.00001 0.09011 0.09014 0.00277 0.00277 0.00001 0.00001 0.74408 0.74409 0.00003 0.00002	0.00890 0.00890 0.00005 0.00004 0.09504 0.09505 0.00000 0.00000 0.00001 0.00001 0.00017 0.09020 0.00278 0.00278 0.00001 0.00001 0.74411 0.74412 0.00002 0.00001 0.00039 0.00035 0.05852 0.05852	0.00890 0.0089 0.00003 0.0000 0.09506 0.0950 0.00000 0.00000 0.00001 0.0000 0.0021 0.0002 0.00278 0.0027 0.00278 0.0001 0.74413 0.7441 0.00001 0.0000 0.0033 0.0003	0 0.00002 0.00002 0 0.09507 0.09508 0 0.0000 0.00000 0 0.00001 0.00000 0 0.0001 0.00002 0 0.00278 0.00278 0 0.00278 0.00022 0 0.0002 0.00002 0 0.74414 0.74414 0 0.00001 0.00001 0 0.00028 0.00026
P, ATM 0.50	00 1.0000 1.5000 .3 14.7 22.0 .7 2026.8 2028.8 .1 3188.6 3192.2 -5 1.7406-4 2.6087-4	29.4 44.1 3 2030.1 2031.6 3 3194.4 3197.2	4.0000 6.0000 58.8 88.2 2032.5 2033.7	PHI= 0.8000 10.000 15.000 147.0 220.4 2035.0 2035.8 3203.3 3204.8 1.7346-3 2.6010-3	20.000 30.000 233.9 440.0 2036.3 2037.0 3205.7 3206.0 3.4672-3 5.1995-1	587.8 734.8 5 2037.4 2037.7 6 3207.6 3208.1
CP, CAL/(G1(K) 0.38 GAMMA (S) 1.22 SON VEL,M/SEC 845	11 0.3711 0.3663 90 1.2343 1.2369	0.3634 0.3598 1.2385 1.2406	28.960 28.963 0.3576 0.3549	28.965 28.967 0.3520 0.3502 1.2452 1.2463 852.9 853.4	28.968 28.969 0.3490 0.3470 1.2471 1.2479 353.7 854.2	9 28,970 28,971 6 0,3467 0,3461 9 1,2485 1,2489

P, PSIA T, DEG K T, DEG F RHO, G/CC 7. M, MOL HT CP, CAL/(G)(K)	0/F= 0.5000 7.3 2123.6 3362.8 7203-5 26.906 0.3769 1.2497 905.6	10.4671 1.0000 14.7 2126.2 3367.5 1.5425-4 26.912 0.3702 1.2535 907.4	F/A= 0. 1.5000 22.0 2127.4 3369.7 2.3126-4 26.914 0.3673 1.2552 908.3	2.0000 29.4 2128.2 3371.0	PERCENT F 3.0000 44.1 2129.0 3372.5 4.6224-4 26.918 0.3634 1.2575 909.4	4.0000 58.8 2129.5 3373.5	6.0000 88.2 2130.1 3374.6	HI= 1.400 10.000 147.0 2130.8 3375.7 1.5397-3 26.921 0.3592 1.2601 910.6	15.000 220.4 2131.2 3376.4	20.000 293.9 2131.4 3376.8 3.0787-3 26.923 0.3576 1.2611 911.1	30.000 440.9 2131.7 3377.3 4.6176-3 26.924 0.3570 1.2615 911.3	40,000 587,8 2131,8 3377,6 6,1564-3 26,924 0,3566 1,2618 911,4	50.000 734.8 2132.0 3377.8 7.6952-3 26.924 0.3563 1.2619 911.5
C0 C02 O H H2 0 H20 NH3 N0 N0 0 N2 0 0 0 0 0	.10336 .06530 .00099 .03854 .12132 .00000 .00007 .66211	0.00791 0.10342 0.06528 0.00071 0.03856 0.12152 0.00000 0.00005 0.66226 0.00000 0.00029 0.00000	0.00791 0.10344 0.06527 2.00059 0.03858 0.12161 0.09000 0.00004 0.66232 0.00000 0.000024 0.00000	0.00791 0.10746 0.06526 0.0051 0.03858 0.12167 0.00000 0.00004 0.66236 0.00000 0.00001 0.00001	0.00791 0.10348 0.06525 0.00042 0.03653 0.12173 0.00000 0.00003 0.66241 0.00000 0.00017 0.00000	0.00791 0.10349 9.06525 0.60036 0.03860 0.12177 0.00000 0.00003 0.66244 0.00000 0.00015 0.00000	0.00791 0.10350 0.06524 0.00030 0.03861 0.12182 0.00000 0.00002 0.66248 0.00000 0.00012	0.00791 0.10352 0.06524 0.0023 0.03861 0.12186 0.00000 0.00002 0.66251 0.00000 0.00009 0.00009	0.00791 0.10353 0.06524 0.00019 0.03862 0.12189 0.00000 0.00001 0.66253 0.00000 0.00008	0.00791 0.10353 0.06523 0.00016 0.03862 0.12191 0.00000 0.00001 0.66255 0.00000 0.00007	0.00791 0.10354 0.06523 0.00013 0.03862 0.12193 0.00000 0.00001 0.66256 0.00000 0.00005	0.00791 0.10354 0.06523 0.00012 0.03862 0.12194 0.00000 0.00001 0.66257 0.00000 0.00005 0.00000	0.00791 0.10354 0.06523 0.00010 0.03863 0.12195 0.00001 0.66258 0.00000 0.00004 0.00004
P, PSIA T, DEG K T, DEG F RHO, G/CC 8. M, MOL HT CP, CAL/(G)(K)	0.5000 7.3 1973.8 3093.1	9.1588 1.0000 14.7 1974.8 3094.9 1.6065-4 26.032 0.3643 1.2669 893.9	F/A= 0. 1.5000 22.0 1975.2 3095.7 2.4092-4 26.033 0.3631 1.2677 894.3	2.0000 29.4 1975.5 3096.2	PERCENT F 3.0000 44.1 1975.8 3096.8 4.8173-4 26.034 0.3616 1.2687 894.7	4.0000 58.8 1976.0 3097.1	6.0000 88.2 1976.2 3097.5	HI= 1.600 10.000 147.0 1976.5 3098.0 1.6053-3 26.035 0.3598 1.2698 895.3	15.000 220.4 1976.6 3098.2 2.4078-3 26.036 0.3595 1.2701 895.4	20.000 233.9 1976.7 3098.4 3.2103-3 26.036 0.3592 1.2702 895.4	30.000 440.9 1976.8 3098.6 4.8153-3 26.036 0.3590 1.2704 895.5	40,000 587.8 1976.9 3098.7 6.4202-3 26,037 0.3588 1,2705 895.6	50,000 734,8 1976,9 3098,8 8.0251-3 26,037 0,3587 1,2706 895,6
C0 C02 0 H H2 0 H20 0 NH3 0 NO 0	.13580 .04835 .00050 .06767 .10737 .00000 .00001	0.00755 0.13584 0.04832 0.00035 0.06771 0.10743 0.00000 0.00001 0.63274 0.00005	0.00755 0.13586 0.04831 0.00029 0.06772 0.10745 0.00000 0.00000 0.63276 0.00004	0.00755 0.13587 0.04830 0.00025 0.06773 0.10747 0.00000 0.63278 0.00004	0.00755 0.13588 0.04830 0.00021 0.06774 0.10749 0.00000 0.00000 0.63279 0.00003	0.00755 0.13589 0.04829 0.00018 0.06775 0.10750 0.00000 0.63280 0.00003	0.00755 0.13590 0.04829 0.00015 0.06776 0.10752 0.00000 0.63282 0.00002	0.00756 0.13591 0.04828 0.00011 0.06776 0.10753 0.00000 0.63283 0.00002	0.00756 0.13591 0.04828 0.00009 0.06777 0.10754 0.00000 0.00000 0.63284 0.00001	0.00756 0.13591 0.04828 0.00008 0.06777 0.10754 0.00001 0.00000 0.63284 0.00001	0.00756 0.13592 0.04828 0.00007 0.06777 0.10755 0.00001 0.00000 0.63285 0.00001	0.90756 0.13592 0.04828 0.00006 0.06777 0.10755 0.00001 0.00000 0.63285 0.00001	0.00756 0.13592 0.04828 0.00005 0.06777 0.10755 0.00002 0.00000 0.63285 0.00001

P, PSIA T, DEG K T, DEG F RHO, G/CC T, M, MOL WT CP, CAL/(G)(K)	0/F= 20,93 0.5000 1.00 7.3 221 3502.6 352(9924-5 1.532 28.874 28,6 0.4380 0.4 1.2054 1.2 874.1 876	00 1.5000 .7 22.0 .3 2216.3 .6 3529.6 -4 2.3842-4 95 28.906 70 0.4067 32 1.2174	2.0000 29.4 2219.4 3535.3	PERCENT F 3.0000 44.1 2223.4 3542.5 4.755-4 28.921 0.3921 1.2238 884.4	UEL = 4 4.0000 58.8 2226.0 3547.0 6.3346-4 28.927 0.3870 1.2261 885.7	6.0000 88.2 2229.1 3552.8	HI = 0.700 10.000 147.0 2232.5 3558.9 1.5798-3 28.941 0.3740 1.2324 889.1	15.000 220.4 2234.8 3563.0	20.000 293.9 2236.3 3565.6 3.1551-3 28.949 0.3668 1.2361 891.0	20.000 440.9 2238.1 3568.8 4.7295-3 28.952 0.3634 1.2379 892.0	40.000 587.8 2239.2 3570.8 6.3034-3 28.955 0.3613 1.2391 892.6	50.000 734.8 2240.0 3572.3 7.8769-3 28.956 0.3599 1.2399 893.0
C0	.00887 0.001 .00326 0.002 .09151 0.093 .00019 0.000 .00000 0.000 .00059 0.000 .00574 0.003 .00674 0.003 .00000 0.000 .73358 0.744 .00091 0.003 .00409 0.003 .005691 0.056	49 0.00212 34 0.09275 13 9.00010 00 0.00000 45 0.00038 83 0.09809 88 0.00695 00 0.00001 07 0.74051 69 0.00058 59 0.00331	0.00888 0.00188 0.09361 0.00008 0.000034 0.00825 0.00699 0.00001 0.74046 0.00051 0.00312	0.00888 0.00158 0.09334 0.00006 0.0001 0.00028 0.08847 0.00705 0.00001 0.74065 0.00043 0.00287 0.05637	0.00889 0.00140 7.09354 0.00005 0.00001 0.00025 0.08861 0.00709 0.00001 0.74077 0.00038 0.00270 0.05632	0.00889 0.00117 0.09379 0.00004 0.00001 0.00021 0.008879 0.00713 0.00001 0.74092 0.00031 0.00247 0.05626	0.00889 0.00093 0.09405 0.00003 0.00001 0.00016 0.08900 0.00719 0.00005 0.00025 0.00025 0.00220	0.00889 0.00077 0.09423 0.00002 0.00001 0.00014 0.00722 0.00002 0.74119 0.00020 0.00201 0.05616	0.00889 0.00068 0.09433 0.00002 0.00001 0.00012 0.08923 0.00724 0.00002 0.74125 0.00018 0.00188 0.05614	0.00889 0.00056 0.09446 0.00001 0.00001 0.00727 0.000727 0.00002 0.74134 0.00015 0.00171 0.05612	0.00889 0.00049 0.09454 0.00001 0.00001 0.00009 0.08943 0.00729 0.00003 0.74139 0.00013 0.00160 0.05611	0.00890 0.00044 0.09460 0.00001 0.00001 0.00008 0.08948 0.00730 0.00003 0.74142 0.00012 0.000152
P, PSIA T, DEG K	2313.1 233	00 1.5000 .7 22.0 .8 2341.6	2.0000 29.4 2348.1	PERCENT F 3.0000 44.1 2356.5	TUEL = 5. 4.0000 58.8 2362.0	,1767 P 6.0000 88.2 2369.1	HI= 0.800 10.000 147.0 2376.9	15.000 220.4 2382.3	20.000 293.9 2385.7	30.000 440.9 2390.1	40.000 587.8 2392.8	50.000 734.8
M, MOL WT CP, CAL/(G)(K)	3703,9 373 5737~5 1.504 28,751 28, 0.5384 0.50 1,1779 1,10 887,6 89	-4 2.2493-4 92 28.813 28 0.4843 63 1.1912	3766.9 2.9923-4 28.827 0.4721 1.1946 899.5	3782.1 4.4752-4 28.846 0.4565 1.1993 902.6	3791.9 5.9556-4 28.858 0.4463 1.2026 904.7	3804.6 8.9115-4 28.873 0.4333 1.2070 907.4	3818.7 1.4812-3 28.890 0.4190 1.2122 910.6	3828.4 2.2177-3 28.902 0.4092 1.2160 912.9	3834.6	3842.5	3847.4	2394.8 3850.9 7.3607-3 28.929 0.3869 1.2254 918.4

P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K)	0/F= 10.4671 0.5000 1.000 7.3 14. 2451.3 2469. 3952.7 3985. 6541-5 1.3228- 26.769 26.80 0.5223 0.479 1.1958 1.207 954.2 961.	7 22.0 29 7 2478.8 2484 8 4002.1 4012 4 1.9783-4 2.6329 7 0.4594 0.44 7 1.2142 1.21	4 44.1 4 2491.5 24 3 4025.0 40 4 3.9402-4 5.24 67 26.852 26 88 0.4315 0 66 1.2243 1	1.0000 6.0000 58.8 88.2 2495.9 2501.3 1032.9 4042.6	H1= 1,4000 10,000 15,000 147.0 220.4 2506.9 2510.5 4052.6 4059.2 1,3069-3 1,9581-3 26,883 26,891 0,3994 0,3921 1,2378 1,2413 979.6 981.6	293.9 2512.7 4063.2 2.6089-3 3.9 26.895 0.3877	30,000 40,000 50,000 440,9 587.8 734.8 2515.4 2517.0 2518.1 1067.9 4070.8 4072.8 3100-3 5,2106-3 6,5109-3 26,901 26,904 26,906 0,3824 0,3793 0,3771 1,2460 1,2476 1,2488 984.2 985.1 985.7
CO 0 0 0 CO2 0 0 H 2 0 0 H 2 0 0 N 2 0 0 O H 0 0 O H	0.00786 0.0078 0.10735 0.1072 0.06045 0.0607 0.00535 0.0041 0.03549 0.0353 1.11976 0.1211 0.00098 0.0008 0.55828 0.6593 0.0036 0.00028 0.0036 0.0028 0.0036 0.0028	5 0.10720 0.107 0.06096 0.061 1 0.00349 0.003 5 0.03529 0.035 0 0.12179 0.122 0 0.00070 0.000 1 0.65981 0.660 2 0.00016 0.000 3 0.00249 0.002	7 0.10714 0.166 0.06118 0.00 0.00261 0.00 16 0.07522 0.00 17 0.12275 0.00 18 0.00054 0.00 18 0.00009 0.00 18 0.00191 0.00	12308 0.12349 00049 0.00041 66079 0.66110 00007 0.00005 00170 0.00143	0.00790 0.00790 0.10709 0.10709 0.06142 0.06148 0.00153 0.00127 0.03516 0.03515 0.12392 0.12419 0.00033 0.00028 0.66142 0.66163 0.00003 0.00002 0.00115 0.00002	0.10708 0. 0.06151 0. 0.00111 0. 0.03514 0. 0.12437 0. 0.00025 0. 0.66176 0. 0.00002 0. 0.00084 0.	.00790 0.00790 0.00791 .10708 0.10708 0.10707 .06155 0.06157 0.06159 .00091 0.00080 0.00072 .03514 0.03514 0.03513 .12457 0.12469 0.12478 .00020 0.00018 0.00016 .66191 0.66200 0.66207 .00001 0.00001 0.00001 .00070 0.00061 0.00055
P, PSIA T, DEG K	0/F= 9.1588 0.5000 1.000 7.3 14. 2328.6 2337.	7 22.0 29	4 44.1 5 2347.6 23	= 9.8437 PH 1.0000 6.0000 58.8 88.2 2349.6 2351.9	HI= 1.6000 10.000 15.000 147.0 220.4 2354.3 2355.8	293.9	30,000 40.000 50.000 440.9 587.8 734.8
RHO, G/CC 6. M, MOL WT CP, CAL/(GI(K)	3731.8 3748. 7944-5 1.3546- 25.965 25.98 0.4341 0.414 1.2312 1.239 958.1 962.	4 2.0290-4 2.7028 4 25.993 25.9 8 0.4058 0.40 4 1.2435 1.24	4 4.0498-4 5.39 8 26.005 26 4 0.3938 0 1 1.2493 1	3769.5 3773.7 3962-4 8.0877-4 26.009 26.014 0.3898 0.3851 0.2513 1.2538 969.5 970.8	3778.0 3780.8	3782.5 3 2.6914-3 4.0 26.024 2 0.3752 0	2357.9 2358.6 2359.0 3784.5 3785.7 3786.5 3055-3 5.3795-3 6.7233-3 26.027 26.028 26.029 0.3730 0.3717 0.3708 1.2604 1.2612 1.2617 974.4 974.8 975.0

CASE= P, ATM P, PSIA T, DEG K T, DEG K T, DEG G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	7 0/F= 0.5000 7.3 2384.1 3831.7 7.3352-5 28.700 0.5641 1.1737 900.4	20.9343 1.0000 14.7 2405.8 3870.8 1.4562~4 28.748 0.5247 1.1821 906.9	F/A= 0. 1.5000 22.0 2417.3 3891.5 2.1758-4 28.773 0.5041 1.1869 910.6	2.0000 29.4 2425.0 3905.2	PERCENT F 3.0000 44.1 2434.9 3923.2 4.3260-4 28.812 0.4731 1.1951 916.4	4.0000 58.8 2441.5 3934.9	6.0000 88.2 2449.9 3950.2	HI = 0,700 10,000 147,0 2459,4 3967,1 1,4303-3 28,865 0,4311 1,2083 925,2	15.000 220.4 2465.9 3979.0 2.1408-3 28.879 0.4200 1.2122 927.7	20.000 293.9 2470.2 3986.6 2.8505-3 28.889 0.4130 1.2149 929.3	30.000 440.9 2475.5 3996.2 4.2682-3 28.900 0.4041 1.2183 931.5	587.8 2478.9 4002.3 4002.3 5.6846-3 28.908 20.3985 1.2206	50.000 734.8 481.3 006.6 002-3 28.913 0.3946 .2222 933.9
MOLE FRACTIONS AR CO CO2 H HO2 H2 H20 N0 N0 N0 N0 O2 O OH	0.00882 0.00957 0.08462 0.00084 0.00001 0.00163 0.08353 0.00981 0.00000 0.73358 0.00267 0.00790	0.00883 0.00789 0.08646 0.00059 0.00001 0.00131 0.08448 0.01017 0.00000 0.73463 0.00211 0.00717 0.05634	0.00884 0.00698 0.08745 0.00048 0.00001 0.00115 0.09499 0.01036 0.00001 0.73318 0.00183 0.00674 0.05598	0.00884 0.00637 0.08612 0.00041 0.00010 0.00104 0.08534 0.00001 0.73555 0.00164 0.00644 0.05574	0.00885 0.00557 0.08899 0.00032 0.00001 0.00090 0.08580 0.01066 0.000141 0.00603 0.05543	0.00886 0.00505 0.08956 0.00027 0.00001 0.00810 0.01077 0.00001 0.73634 0.00126 0.00573 0.05523	0.00886 0.00436 0.09031 0.00022 0.00001 0.00070 0.08650 0.01091 0.00001 0.73674 0.00107 0.005533 0.05497	0.00887 0.00360 0.09113 0.00016 0.00001 0.00057 0.08697 0.01108 0.00002 0.73719 0.00087 0.00484 0.05469	0.00887 0.00307 0.09171 0.00012 0.00001 0.00048 0.08730 0.01119 0.00002 0.73750 0.00073 0.00448	0.00887 0.00274 0.09208 0.00010 0.00002 0.00043 0.08752 0.01126 0.00065 0.00065 0.00063	0.00888 0.00232 0.09254 0.00008 0.00002 0.00036 0.01136 0.00003 0.73795 0.00054 0.00389 0.05424	0.00205 0.00205 0.002083 0.000002 0.000032 0.00003 0.00142 0.00003 0.73811 0.000048 0.00366 0.00366 0.00366 0.00366 0.00005 0.000068 0.00366 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.0000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.0000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.0000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.0000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.000068 0.0000000000	00888 00186 09303 00006 00002 00029 08812 01146 00003 73822 00043 00349 05410
CASE= 1	7 0/F= 0.5000	18.3175	F/A= 0.	05459	PERCENT F	UEL= 5	.1/67 P	HI= 0.800	00				
P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/IGI(K) GAMMA (S) SON VEL,M/SEC	7.3 2461.6 3971.2	1.0000 14.7 2491.5 4025.1 1.3978-4 28.578 0.6301 1.1636 918.4	1.5000 22.0 2508.1 4054.8 2.0855-4 28.614 0.6035 1.1678 922.5	2.0000 29.4 2519.3 4075.0 2.7707-4 28.639 0.5856 1.1709 925.4	3.0000 44.1 2534.4 4102.2 4.1361-4 28.672 0.5619 1.1752 929.4	4.0000 58.8 2544.6 4120.5 5.4971-4 28.694 0.5460 1.1784 932.1	6.0000 88.2 2558.1 4144.9 8.2104-4 28.724 0.5250 1.1828 935.9	10.000 147.0 2573.9 4173.3 1.3617-3 28.759 0.5007 1.1884 940.4	15.000 220.4 2585.3 4193.8 2.0353-3 28.784 0.4833 1.1929 943.8	20.000 293.9 2592.8 4207.4 2.7074-3 28.801 0.4718 1.1959 946.1	30.000 440.9 2602.6 4225.0 4.0488-3 28.822 0.4570 1.2002 949.2	587.8 2609.0 2 4236.5 4 5.3878-3 6.7 28.836 2 0.4473 0	00.000 734.8 2613.6 1244.8 7252-3 28.846 0.4404 .2053 952.9

P, ATM 0. P, PSIA T, DEG F 33 RHO, G/CC 8.40 M, MOL WT 28 CP, CAL/(G)(K) 0. GAMMA (S) 1.	0/F= 17.2400 .5000 1.0000 7.3 14.7 095.1 2102.3 311.5 3324.4 800-5 1.6767-4 3.909 28.925 4.4147 0.3980 .2134 1.2206 855.1 858.8	F/A= 0.05800 1.5000 2.000 22 0 29.4 2105.8 2108.0 3330.7 3334.7 25.116-4 3.3458-4 28.932 28.937 0.3899 0.3848 1.2244 1.2268 860.8 862.0	3.0000 4.0000 44.1 58.8 2110.8 2112.5 3339.7 3342.8 5.0131-4 6.6795-4 28.943 28.947 0.3785 0.3746	88.2 147.0 2114.7 2116.9 3346.7 3350.8 1.0011-3 1.6669-3 28.951 28.956 0.3698 0.3647 1.2344 1.2372	15.000 20.000 220.4 293. 2118.5 2119. 3353.5 3355.	3 440.9 587.8 734.8 2 120.6 2121.3 2121.8 2 3357.4 3358.7 3359.6 3 4.9935-3 6.6561-3 8.3184-3 4 28.964 28.965 28.966 2 0.3558 0.3552 0.3541 2 1.2417 1.2426 1.2432
CO 0.0 CO2 0.1 H 0.0 H2 0.0 N0 0.1 N0 0.0 N2 0.7 0 0.0 OH 0.0	00879 0.00880 00260 0.00196 11144 0.11214 00010 0.0006 00051 0.00038 10668 0.10704 000371 0.00376 00000 0.00000 037483 0.73519 00023 0.00024 0263 0.00211 02660 0.02832	0.00880 0.00880 0.00165 0.00146 0.11248 0.11269 2.00005 0.60004 0.00032 0.00028 0.10723 0.10734 0.00378 0.0030 0.00378 0.0030 0.73537 0.73548 0.00300 0.00017 0.00173 0.00181	0.00122 0.00167 0.11295 0.11311 0.00003 0.00002 0.00024 0.00021 0.10749 0.10759 0.00382 0.0038 0.00000 0.00000 0.73562 0.73571 0.00014 0.00013	0.11331 0.11352 0.00002 0.00001 0.00017 0.00014 0.10772 0.10785 0.00384 0.00386 0.00000 0.00001 0.73582 0.73593 0.00010 0.00008 0.00142 0.00126	0.00881 0.0088 0.00058 0.0005 0.11365 0.1137 0.00001 0.0000 0.00011 0.0000 0.00387 0.0038 0.00387 0.0038 0.00360 0.7360 0.73601 0.7360 0.00007 0.0000 0.0015 0.0015	1 0.00042 0.00037 0.00033 3 0.11383 0.11389 0.11394 0.00001 0.00000 0.00000 0 0.00008 0.00007 0.00006 0 0.10808 0.10813 0.10817 3 0.00389 0.00389 0.00390 0 0.00001 0.00001 0.00001 5 0.73611 0.73615 0.73618 6 0.00005 0.00004 0.00004 7 0.00097 0.00091 0.00086
	0/F= 16.2822 .5000 1.0000	F/A= 0.06142		.7863 PHI= 0.90		
T, DEG F 34 RHO, G/CC 8.15 M, MOL WT 28 CP, CAL/(GI(K) 0. GAMMA (S) 1.	7.3 14.7 157.6 2168.9 423.9 3444.4	1.5C30 2.0000 22.0 29.4 2174.7 2178.4 3454.7 3461.4 2.4291-4 3.2341-4 28.897 28.905 0.4253 0.4174 1.2092 1.2123 869.8 871.6	44.1 58.8 2183.1 2186.3 3469.9 3475.3 4.8424-4 6.4491-4 28.915 28.922 0.4073 0.4009 1.2164 1.2192	88.2 147.0 2189.9 2194.0 3482.1 3489.4 9.6597-4 1.6074-3 28.930 28.939 0.3928 0.3841 1,2228 1,2269	15.000 20.00 220.4 233.' 2196.7 2198.' 3494.4 3497.' 4.086-3 3.2094-28.944 0.2782 0.374! 1.2297 1.231' 880.9 881.:	440.9 587.8 734.8 4 2200.6 2201.9 2202.8 5 3501.3 3503.7 3505.4 3 4.8102-3 6.4103-3 8.0100-3 3 28.953 28.956 28.958 5 0.3701 0.3673 0.3653 5 1.2339 1.2353 1.2364

CASE= 2 0/F= P, ATM 0.5000 P. PSIA 7.3 T, DEG K 1830.7 T, DEG F 2835.6 RHO, G/CC 8.3946-5 M, MOL WT 25.222 CP, CAL/IGIIK) 0.3649 GAMMA (S) 1.2764 SON VEL,M/SEC 877.7	1,0000 1,5000 14,7 22,0 1831.1 1831.3 2836.3 2836.6 1.6786-4 2,5177-4 25,223 25,223 0,3638 0,3633 1,2772 1,2775	2.0000 3.0000 29.4 44.1 1831.4 1831.5 2836.8 2837.0	4.0000 6.0000 58.8 88.2 5.1831.6 1831.7 0.2837.2 2837.3 6.7131-4 1.0069-3 8.25.224 25.224 0.3624 0.3622 0.12781 1.2783	147.0 220.4 1831.8 1831.8 2837.5 2837.6 1.6781-3 2.5171-3 25.224 25.224 0.3619 0.3618 1.2785 1.2786	20.000 30.000 293.9 440. 1831.9 1831. 2837.7 2837.3 3.3561-3 5.0341- 25.224 25.224 0.3617 0.3617 1.2787 1.278 878.7 878.	587.8 734.8 9 1832.0 1832.0 8 2837.8 2837.9 8 6.7121-3 8.3901-3 5 25.225 25.225 0.3615 0.3615 7 1.2788 1.2788
MOLE FRACTIONS AR C0 0,16096 C02 0,03731 H 0,00020 H2 0,09888 H20 0,08980 NH3 0,00000 N2 0,60560 OH 0,00001	0.16098 0.16098 0.03730 0.03729 0.00014 0.00012 0.09890 0.09891 0.08982 0.08983 0.00000 0.00000 0.60562 0.60563	0.16099 0.16099 0.03729 0.03729 0.00010 0.00008 0.09892 0.09894 0.008983 0.08984 0.00000 0.00000	0.16100 0.16100 0.03729 0.03728 0.00007 0.00006 0.09892 0.09893 0.00000 0.00000 0.60564 0.60565	0.16100 0.16100 0.03728 0.03728 0.00005 0.00004 0.09893 0.09893 0.08985 0.08985 0.00001 0.00001 0.60565 0.60566	0.16101 0.1610 0.03728 0.0372 0.00003 0.0000 0.09892 0.0989	1 0.16101 0.16101 0.03728 0.03729 3 0.00002 0.00002 2 0.09891 0.09890 5 0.08985 0.08985 2 0.00003 0.00003 6 0.60566 0.60566
CASE= 2 0/F= P, ATM 0.5000	1.0000 1.5000	2.0000 3.0000	4.0000 6.0000		20.000 30.00	0 40.000 50.000
P, PSIA 7.3 T, DEG K 1694,8 T, DEG F 2590.9 RHO, G/CC 8.8006-5 M, MQL HT 24.478 CP, CAL//GIIK1 0.3653 GAMMA (S) 1.2861 SON VEL,M/SEC 860.5	1694.9 1695.0 2591.2 2591.3 1.7600-4 2.6399-4 24.478 24.478 0.3649 0.3647 1.2865 1.2866	29.4 44.1 1695.0 1695.7 2591.3 2591.4 3.5198-4 5.2797-4 24.478 24.475 0.3645 0.3644 1.2867 1.2866 860.7 860.7	1695.1 1695.1 2591.5 2591.5 7.0394-4 1.0559-3 24.479 24.479 0.3643 0.3642 1.2869 1.2869	1695.2 1695.2 2591.6 2591.7 1.7598-3 2.6397-3 24.479 24.479 0.3641 0.3641	293.9 440.1 1695.2 1695. 2591.7 2591.4 3.5136-3 5.2793- 24.479 24.48 0.3641 0.364 1.2871 1.287 860.9 860.1	3 1695.3 1695.4 3 2591.9 2591.9 3 7.0390-3 8.7987-3 0 24.480 24.481 1 0.3641 0.3642 1 1.2871 1.2871

T, DEG F 3781.6 RHO, G/CC 7.4126-5 1. M, MOL WT 28.665	1.0000 1.5000 1.4.7 22.0 2379.4 2391.9 3823.2 3845.6 4707-4 2.1967-4 2.28.715 28.743 0.5558 0.5340	2.0000 3.0000 29.4 44.1 2400.2 2411.2 3860.7 3880.5	4.0000 6.0000 58.8 88.2 2418.6 2428.2 3893.7 3911.0	HI= 0.8500 10.000 15.000 147.0 220.4 2439.1 2446.8 3930.6 3944.5 1.4413-3 2.1563-3 28.846 28.863 0.4523 0.4391 1.2008 1.2051 918.8 921.6	20.000 30.000 293.9 440.9 2451.8 2458.2 3953.5 3965.0 2.8703-3 4.2964-3 28.873 28.887 0.4306 0.4197 1.2080 1.2119 923.5 926.0	40.000 50.000 587.8 734.8 2462.3 2465.2 3972.4 3977.6 5.7208-3 7.1440-3 28.896 28.903 0.4127 0.4078 1.2145 1.2164 927.6 928.8
C0 0.01298 0 C02 0.10010 0 H 0.00087 0 H2 0.00230 0 H20 0.10140 0 N0 0.00686 0 N2 0.72702 0 OH 0.00170 0 OH 0.00680 0	0.01093	.00153 0.00134 .10336 0.10386 .00724 0.00733 .00000 0.00000 .72927 0.72984 .00105 0.00090 .00556 0.00520	0.00876 0.00877 0.00733 0.00642 0.10628 0.10727 0.60030 0.00024 0.00001 0.00001 0.00122 0.00106 0.00739 0.00747 0.00000 0.00001 0.73022 0.73071 0.00080 0.00068 0.00462 0.00462 0.002853 0.02811	0.00878	0.00878	0.00879 0.00879 0.00319 0.00291 0.11080 0.11110 0.00001 0.00007 0.00001 0.00004 0.10625 0.10640 0.00775 0.00777 0.00001 0.00002 0.73246 0.73261 0.00319 0.00305 0.02655 0.02653
CASE= 4 0/F= 16 P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2391.4 T, DEG F 3844.9 RHO, G/CC 7.2778-5 1. M. MOL HT 28.563	1.0000 1.5000 14.7 22.0 2418.4 2433.2	2.0000 3.0000 29.4 44.1 2443.3 2456.9 3938.2 3962.6	4.0000 6.0000 58.8 88.2 2466.0 2478.2 3979.1 4001.1	HI= 0.9000 10.000 15.000 147.0 220.4 2492.4 2502.8 4026.7 4045.3 1.4073-3 2.1039-3	20.000 30.000 293.9 440.9 2509.6 2518.5 4057.6 4073.6	40.000 50.000 587.8 734.8 2524.3 2528.5 4084.0 4091.6
CP, CAL/(G)(K) 0.6539	0.6097 0.5858	28.676 28.706 0.5698 0.5483 1.1726 1.1768 911.4 915.1	28.726 28.752 0.5339 0.5148 1.1799 1.1842 917.7 921.2	28,783 28,806 0,4926 0,4765 1,1897 1,1940 925,5 928,7	28.821 28.840 0.4659 0.4520 1.1970 1.2011 930.9 933.9	5.5718-3 6.9553-3 28.853 28.862 0.4429 0.4363 1.2040 1.2062 935.9 937.3

CASE= 5 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0.5000 7.3 2192.9 3487.5	8.1411 1,0000 14.7 2197.4 3495.6 1.3976-4 25,200 0.3929 1.2584 955.2	F/A= 0 1.5000 22.0 2199.5 3499.4 2.0947-4 25.204 0.3883 1.2609 956.5	2.0000 29.4 2200.7 3501.6	PERCENT F 3,0000 44.1 2202.3 3504.4 4.1851-4 25.210 0.3822 1.2644 958.3	4.0000 58.8 2203.2 3506.0	6.0000 88.2 2204.3 3508.0	PHI= 1.800 10.000 147.0 2205.4 3510.0 1.3934-3 25.216 0.3753 1.2683 960.4	15.000 220.4 2206.1 3511.3	20.000 293.9 2206.6 3512.1 2.7856-3 25.219 0.3728 1.2698 961.1	30.000 440.9 2207.1 3513.0 4.1776-3 25.220 0.3717 1.2705 961.5	40.000 587.8 2207.4 3513.6 5.5696-3 25.221 0.3711 1.2709 961.7	50.000 734.8 2207.6 3514.0 6.9614-3 25.221 0.3706 1.2712 961.8
MOLE FRACTIONS AR CO CO2 H H2 H20 NH3 NO N2 O OH	0.00722 0.16575 0.03227 0.09292 0.09431 0.00000 0.00004 0.60483 0.00001 0.00033	0.00722 0.16589 0.03221 0.00168 0.09314 0.09453 0.00000 0.00003 0.60506 0.00000 0.00024	0.00722 0.16595 0.03218 0.09324 0.09463 0.09000 0.00002 0.60516 0.00360 0.00020	0.00723 0.16599 0.03216 0.00121 0.09330 0.09469 0.00000 0.00002 0.60523 0.00000 0.00018	0.00723 0.16604 0.03214 0.00100 0.09337 0.09476 0.00000 0.00002 0.60530 0.00000 0.00015	0.00723 0.16606 0.03212 0.00087 0.09341 0.09481 0.00000 0.00002 0.60535 0.00000 0.00013	0.00723 0.16610 0.03211 0.00072 0.09347 0.09486 0.00000 0.00001 0.60541 0.00000 0.00010	0.00723 0.16613 0.03209 0.00056 0.09352 0.09491 0.00000 0.00001 0.60546 0.00000 0.00008	0.00723 0.16615 0.03208 0.00046 0.09355 0.09495 0.00001 0.00001 0.60550 0.00000	0.00723 0.16617 0.03208 0.00040 0.09357 0.09497 0.00001 0.00001 0.60552 0.00000 0.00006	0.00723 0.16618 0.03207 0.00033 0.09359 0.09499 0.00001 0.00001 0.60555 0.00000 0.00005	0.00723 0.16619 0.03207 0.00028 0.09360 0.09500 0.00001 0.00000 0.60557 0.00000 0.00004	0.00723 0.16620 0.03207 0.00025 0.09361 0.09501 0.00002 0.00000 0.60558 0.00000 0.00004
CASE= 5 P, ATM P, PS1A T, DEG K T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGIIK) GAMMA (SI SON VEL,M/SEC	0.5000 7.3 2057.3 3243.3	7.3270 1.0000 14.7 2059.4 3247.3 1.4479-4 24.468 0.3835 1.2725 943.7	F/A= 0 1.5000 22.0 2060.4 3249.1 2.1709-4 24.470 0.3811 1.2740 944.4	.13648 2.0000 29.4 2061.0 3250.1 2.8939-4 24.471 0.3797 1.2749 944.8	PERCENT F 3.0000 44.1 2061.7 3251.4 4.3396-4 24.472 0.3780 1.2759 945.4	4.0000 58.8 2062.2 3252.2	6.0000 88.2 2062.7 3253.1	PHI= 2.000 10.000 147.0 2063.2 3254.0 1.4457-3 24.475 0.3744 1.2782 946.5	15.000 220.4 2063.5 3254.6	20.000 293.9 20.3.7 3255.0 2.8908-3 24.477 0.3732 1.2790 946.9	30.000 440.9 2064.0 3255.4 4.3358-3 24.477 0.3726 1.2793 947.1	40.000 587.8 2064.1 3255.7 5.7807-3 24.478 0.3723 1.2796 947.2	50.000 734.8 2064.2 3255.9 7.2256-3 24.478 0.3721 1.2797 947.2
MOLE FRACTIONS AR CO CO2 H H2	0.00693 0.18686 0.02422	0.00693 0.18693 0.02419	0.00693 0.18696 0.02418	0.00693 0.18698 0.02417 0.00050	0.00693 0.18700 0.02416 0.00050	0.00693 0.18702 0.02415 0.00043	0.00693 0.18703 0.02414 0.00035	0.00693 0.18705 0.02414 0.00027	0.00693 0.18706 0.02413 0.00022	0.00693 0.18707 0.02413 0.00019	0.00693 0.18707 0.02413 0.00016	0.00693 0.18708 0.02413 0.00014	0.00693 0.18708 0.02413 0.00012

P, ATM 0.5 P, PSIA T, DEG K 249 T, DEG F 402	7.3 14.7 1.4 2524.7 4.9 4084.8 1.5 1.3744-4 4001 28.474 343 0.6822 508 1.1570	F/A= 0.05800 1.5000 2.000 22.0 29. 2543.4 2556. 4118.3 4141. 2.0495-4 2.7217- 28.515 28.54 0.6539 0.634 1.1608 1.163 927.8 930.	0 3.0000 4.0000 4 44.1 58.4 2 2573.5 2585.4 4 4172.7 4194.(4 4.0603-4 5.3938-3 28.582 28.600 8 0.6091 0.5919 6 1.1676 1.1700	88.2 147.0 4.2601.4 2620.4 4.222.9 4256.9 8.0509-4 1.3340-3 8.28.643 28.684 9.0.5688 0.5417 4.1.1745 1.1798	15.000 20.000 220.4 293.9 2634.4 2643.7 4282.2 4299.0 1.9926-3 2.6492-3 28.715 28.736 0.5219 0.5086 1.1840 1.1870 950.3 952.9	440.9 587.8 734.8 2656.1 2664.3 2670.3 4321.3 4336.0 4346.9
MOLE FRACTIONS AR C.00 C0 C0 C02 0.08 H 0.00 H02 0.00 H2 0.00 H2 0.00 N2 0.00 N2 0.71' 0 0.00 OH 0.01 0.00	347 0.02084 356 0.09149 220 0.00167 200 0.00001 417 0.00358 597 0.09746 519 0.00955 200 0.00000 201 0.72082 362 0.00296 362 0.00988	0.00867 0.0086 0.01930 0.0182 0.09319 0.0943 0.00010 0.0010 0.00001 0.0000 0.09829 0.0988 0.00975 0.0098 0.00000 0.0000 0.72176 0.7224 0.00261 0.0023 0.00943 0.0091	2 0.01671 0.01567 8 0.09603 0.09711 4 0.00103 0.0009 1 0.09061 0.0000 6 0.09963 0.1001 8 0.01005 0.01017 0 0.00001 0.0000 1 0.72330 0.7239 8 0.00208 0.0018 1 0.00865 0.0083	7 0.01423 0.01249 8 0.09876 0.10067 1 0.00075 0.00058 1 0.00001 0.00001 2 0.00001 0.00001 3 0.01087 0.10171 7 0.01032 0.01050 0.00001 0.00001 0.00010 0.0001 0.72472 0.72570 0.00164 0.00137 0.00728	0.00874 0.00874 0.01118 0.01029 0.10210 0.10306 0.00047 0.00040 0.00001 0.00002 0.00173 0.00158 0.10234 0.10275 0.01062 0.01070 0.00001 0.00001 0.72642 0.72690 0.00118 0.00165 0.00693 0.00651 0.02839 0.02797	0.00002 0.00002 0.00002 0.00138 0.00125 0.00116 0.10331 0.10368 0.10396 0.01080 0.01087 0.01092 0.00001 0.00002 0.00002 0.72754 0.72796 0.72828 0.00090 0.00080 0.00073 0.00607 0.00577 0.00554
P, ATM 0.5 P, PSIA	7.3 14.7	F/A= 0.06142 1.5000 2.000 22.0 29.	0 3.0000 4.000 4 44.1 58.8		00 15.000 20.000 220.4 293.9	30.000 40.000 50.000 440.9 587.8 734.8
T, DEG F 406 RHO, G/CC 6.849 M, MOL HT 28. CP, CAL/(G)(K) 0.7 GAMMA (S) 1.1	0-5 1,3542-4 281 28,360 331 0,7292	2572.5 2586. 4170.8 4196. 2.0184-4 2.6795. 28.405 28.43 0.6999 0.680 1.1556 1.158 932.8 935.	2 4231.0 4254.4 4 3.9953-4 5.3055-6 6 28.478 28.50 1 0.6534 0.6354 1 1.1616 1.1643	2 2637.4 2659.1 3 4287.6 4326.8 4 7.9145-4 1.3105-3 7 28.547 28.594 4 0.6112 0.5826 2 1.1679 1.1727	2675.5 2686.6 4356.2 4376.2 1.9561-3 2.5996-3 28.630 28.654 0.5614 0.5472 1.1765 1.1792 956.1 958.8	2701.5 2711.5 2718.9 4402.9 4420.9 4434.3

P, ATM 0.5 P, PSIA T, DEG K 22C T, DEG F 351 RHO, G/CC 7.94 M, MOL WT 28. CP, CAL/(G(K) 0.5 GAMMA (S) 1.1	0/F= 15.4253 5000 1.0000 7.3 14.7 07.1 2223.0 13.0 3541.7 59-5 1.5799-4 7.784 28.819 5190 0.4894 1810 1.1887 57.7 873.1	F/A= 0.06483 1.5000 2.20 29.0 22.0 29.0 2231.4 2237.1 3556.9 3566.2 2.6623-4 3.1432-2 28.837 28.847 0.4737 0.463. 1.1932 1.168 876.2 878.3	3.0000 4.000 44.1 58. 2244.3 2249.3 3580.1 3588. 4.7020-4 6.2583- 28.865 28.87 0.4497 0.440 3 1.2007 1.203	88.2 147.0 1 2255.3 2262.3 7 3599.9 3612.4 1 9.3659-4 1.5570-3 5 28.888 28.903 7 0.4290 0.4159 3 1.2080 1.2130	15.000 220.4 2267.1 3621.2	20.000 293.9 2270.2 3626.7 3.1049-3 28.920 0.4007 1.2193 892.1	30.000 440.9 2274.2 3633.8 4.6507-3 28.929 0.3931 1.2226 893.9	40.000 587.8 2276.7 3638.3 6.1952-3 7. 28.934 0.3882 1.2248 895.1	50.000 734.8 2278.4 3641.5 7390-3 28.938 0.3848 1.2264 896.0
MOLE FRACTIONS AR CO CO CO CO CO H2 CO H2 CO H2 CO	0917 0.00758 1689 0.11863 0034 0.00024 0174 0.00141 1634 0.11706 0319 0.00320 2719 0.72806 0045 0.00034 0332 0.00293	0.00872 0.0087 0.00673 0.0061 0.11956 0.1201 0.00124 0.0011 0.11744 0.1176 0.00324 0.0032 0.72852 0.7288 0.00029 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032 0.0032	0.00541 0.0045 0.12100 0.1215 0.00013 0.0001 0.00058 0.0008 0.11801 0.1182 0.000320 0.0031 0.72923 0.7294 0.00021 0.0001 0.00027 0.0025	1 0.00427 0.00354 1 0.12225 0.12304 1 0.00009 0.00006 3 0.00076 0.00063 3 0.11851 0.11882 9 0.00318 0.00318 9 0.72983 0.73022 9 0.00016 0.00012 4 0.00206 0.00185	0.00304 0.12359 0.00005 0.00054 0.11904 0.00317 0.73048 0.00010 0.00169	0.00874 0.00272 0.12394 0.00004 0.00048 0.11919 0.00316 0.73065 0.73065 0.0009 0.00159	0.00874 0.00231 0.12439 0.00003 0.00040 0.11937 0.00316 0.73087 0.00007 0.00145 0.00920	0.00205 0.12467 0.00003 0.00036 0.11948 0.00315 0.73101 0.00006 0.00136	0.00875 0.00186 0.001887 0.00002 0.00033 0.11957 0.00315 0.73111 0.00006 0.00129 0.00899
P, ATM 0.5 P, PSIA T, DEG K 224 T, DEG F 35 RHO, G/CC 7.79 M, MOL WT 28. CP, CAL/IGJ(K) 0.5 GAMMA (S) 1.1	0/F= 14.6540 5000 1.0000 7.3 14.7 40.1 2259.2 72.6 3606.8 35-5 1.5490-4 674 28.715 6613 0.5304 6722 1.1789 72.6 878.2	F/A= 0.06824 1.5000 29.0 22.0 29.0 269.5 276.1 3625.4 3638.1 2.3146-4 3.0783- 28.737 28.757 0.5140 0.503 1.1828 1.1856 881.3 883.	3.0000 4.000 44.1 58. 5 2285.8 2292. 0 3654.8 3666. 1 4.6018-4 6.1217- 2 28.772 28.78 0 0.4887 0.479 1 1.1894 1.192	88.2 147.0 1 2300.5 2310.8 1 3681.2 3698.7 4 9.1548-4 1.5205-3 5 28.803 28.824 1 0.4665 0.4521 1 1.1958 1.2003	00 15.000 220.4 2317.3 3711.5 2.2749-3 28.839 0.4417 1.2038 896.8	20.000 293.9 2322.1 3720.0 3.0281-3 28.849 0.4348 1.2062 898.5	30.000 440.9 2328.2 3731.1 4.5321-3 28.862 0.4259 1.2034 900.7	40.000 587.8 2332.3 3738.5 6.0340-3 7. 28.870 0.4201 1.2117 902.1	50.000 734.8 2335.3 3743.9 .5344-3 28.877 0.4158 1.2133 903.2
MOLE FRACTIONS AR 0.00 C0 0.01 C02 0.11 H 0.00 H2 0.00 H20 0.12 N0 0.00	1536 0.01350 1639 0.11844 0054 0.00039 0296 0.00255	0.00866 0.0086 0.01246 0.0117 0.11957 0.1203 0.00032 0.0021 0.0233 0.0021 0.12179 0.1221	0.01080 0.0101 0.12140 0.1221 0.00023 0.0002 0.00198 0.0018	5 0.00928 0.00826 1 0.12306 0.12418 0 0.00016 0.00012 5 0.00167 0.00147	0.00751 0.12500 0.00010 0.00133	0.00869 0.00700 0.12555 0.00008 0.00123 0.12410	0.00870 0.00634 0.12627 0.00007 0.00111 0.12437	0.00590 0 0.12675 0 0.00006 0 0.00103 0	0.00870 0.00557 0.12710 0.00005 0.00097 0.12466 0.00171

AR 1.000000 0.000000 0 C 1.000000 0 2.000000 0 N 2.000000 0.000000 0	0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	0.000000 0.00045600 0.000000 0.75525296	-5059.80 L 298.19 0.00 G 600.00 0.00 G 600.00 0.00 G 600.00 0.00 G 600.00	00 0 0.000 00 0 0.000 00 0 0.000	00 00 00
P, PSIA 7.3 T, DEG K 864.1 E T, DEG F 1095.8 10 RHO, G/CC 2.0425-4 4.08 M, MOL WT 28.966 28 CP, CAL/IGI(K) 0.2690 0. GAMMA (S) 1.3424 1.	.0000 1.5000 2.0000 14.7 22.0 29.4 864.1 864.1 864.1 95.8 1095.8 1095.8	864.1 864.1 864 1095.8 1095.8 1095	8.2 147.0 220.4 1.1 864.1 864.1 1.8 1095.8 1095.8 1095.8 1-3 4.0850-3 6.1275-3 9 166 28.966 28.966 190 0.2690 0.2690 124 1.3424 1.3424	20.000 30.000 293.9 440.5 864.1 864.1 1095.8 1095.8 8.1700-3 1.2255-2 28.966 28.966 0.2690 0.2690 1.3424 1.3422 577.0 577.0	587.8 734.8 864.1 864.1 1 1095.7 1095.7 1 1.6340-2 2.0425-2 28.966 28.966 0.2690 0.2690 1 1.3424 1.3424
C02 0.01439 0.0 H20 0.01343 0.0 N0 0.00001 0.0 N02 0.00000 0.0 N2 0.77564 0.7	00926 0.00926 0.00926 01439 0.01439 0.01439 01343 0.01343 0.01343 00001 0.00001 0.00001 00000 0.00000 0.00001 077564 0.77564 0.77564 0.18727 0.18727	0.00926 0.00926 0.009 0.01439 0.01439 0.014 0.01343 0.01343 0.015 0.00001 0.00001 0.000 0.00000 0.00000 0.000 0.77564 0.77564 0.775 0.18727 0.18727 0.187	139 0.01439 0.01439 143 0.01343 0.01343 101 0.00001 0.00001 100 0.00000 0.00000 164 0.77564 0.77564	0.00926 0.00926 0.01439 0.01435 0.01343 0.01345 0.00001 0.00001 0.00000 0.00000 0.77564 0.77564 0.18726 0.18726	0.01439 0.01439 0.01343 0.01343 0.00001 0.00001 0.00001 0.00001 0.77564 0.77564
P, PSIA 7.3 T, DEG K 1106.5 11 T, DEG F 1532.1 15 RHO, G/CC 1.5952-4 3.15 M, MOL WT 28.968 26 CP, CAL/IGI(K) 0.2839 0. GAMMA (S) 1.3186 1.	2700 F/A= 0.01365 .0000 1.5030 2.0000 14.7 22.0 29.4 .06.5 1106.5 1106.5 .032.1 1532.1 1532.1 .033-4 4.7855-4 6.3806-4 .8.968 28.968 28.968 .2839 0.2839 0.2839 .03166 1.3186 1.3186 .47.1 647.1 647.1	1106.5 1106.5 1106 1532.1 1532.1 1532	1.2 147.0 220.4 1.5 1106.5 1106.5 1.1 1532.1 1532.1 1532.3 1903-3 4.7855-3 (68 28.968 28.968 28.968 (98.968 28.968 19.2839 0.2839 (98.968 1.3185 1.3185 1.3185 1.3185 1.3185 1.3185 1.3185 1.3185 1.3185	20,000 30,000 233.9 440.5 1106.5 1106.5 1532.1 1532.1 6.3807-3 9,5710-2 28,968 28,968 0,2839 0,2835 1,3185 1,3185 647.1 647.1	587.8 734.8 1106.5 1106.5 1532 1 1532.1 11.2761-2 1.5952-2 28.968 28.968 28.968 28.968 0.2839 0.2839 1.3185 1.3185
C02 0.02829 0.0 H20 0.02669 0.0 N0 0.00009 0.0 N02 0.00000 0.0 N2 0.77043 0.7	00920 0.00920 0.00920 02829 0.02829 0.02829 02669 0.02669 0.02659 00000 0.00000 0.00000 077043 0.77043 0.77043 0.16531 0.16531	0.00920 0.00920 0.009 0.02829 0.02829 0.026 0.02669 0.02669 0.000 0.00009 0.00009 0.000 0.00000 0.00000 0.000 0.77043 0.77043 0.770 0.16531 0.16530 0.165	829 0.02829 0.02829 869 0.02669 0.02669 809 0.00009 0.00009 801 0.00001 0.00001 843 0.77043 0.77043	0.00920 0.00920 0.02829 0.02829 0.02669 C.02669 0.00009 0.00009 0.00001 0.00001 0.77043 0.77043 0.16530 0.16530	0 0.02829 0.02829 0 0.02669 0.02669 0 0.00009 0.00009 0.00001 0.00001 0.77043 0.77043

CASE= 4 P, ATM A P, PS1A T, DEG K T, DEG K T, DEG C M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0.5000 7.3 2418.9 3894.4	15.4253 1.0000 14.7 2448.8 3948.1 1.4189-4 28.511 0.6566 1.1590 909.8	F/A= 0 1.5000 22.0 2465.5 3978.2 2.1166-4 28.547 0.6319 1.1627 913.7	2.0000 29.4 2477.0 3998.9	PERCENT F 3.0000 44.1 2492.6 4027.0 4.1958-4 28.606 0.5929 1.1690 920.3	4.0000 58.8 2503.3 4046.2	6.0000 88.2 2517.8 4072.3	HI= 0.950 10.000 147.0 2535.0 4103.2 1.3796-3 28.698 0.5341 1.1804 931.1	15.000 220.4 2547.8 4126.3	20.000 293.9 2556.4 4141.8 2.7406-3 28.744 0.5051 1.1870 936.9	30.000 440.9 2567.8 4162.4 4.0961-3 28.769 0.4896 1.1909 940.1	587.8 73 2575.5 258 4176.2 418 5.4483-3 6.798 28.786 28, 0.4792 0.4 1.1936 1.1	.000 34.8 81.2 86.4 83-3 .798 4716 1957
MOLE FRACTIONS AR CO CO2 H H02 H20 N0 N02 N2 0 OH	0.00860 0.02426 0.10032 0.00164 0.00000 0.00448 0.10936 0.00592 0.00000 0.71726 0.00184 0.00769 0.01863	0.00862 0.02167 0.10319 0.00124 0.00000 0.00388 0.11075 0.00603 0.00000 0.71886 0.00146 0.00704 0.01726	0.00863 0.02017 0.10486 0.00104 0.00000 0.00356 0.11151 0.00607 0.00000 0.71375 0.00127 0.00666 0.01647	0.00864 0.01911 0.10602 0.00092 0.00003 0.00333 0.11204 0.00610 0.00000 0.72037 0.00115 0.00639 0.01593	0.00865 0.01765 0.10763 0.00077 0.00007 0.00303 0.11275 0.00612 0.00000 0.72122 0.00099 0.00601 0.01518	0.00865 0.01663 0.10875 0.60067 0.00000 0.00282 0.11323 0.00613 0.00000 0.72180 0.00089 0.00575 0.01466	0.00866 0.01523 0.11029 0.00056 0.00001 0.00255 0.11388 0.00614 0.00000 0.72259 0.00076 0.00538 0.01396	0.00867 0.01353 0.11215 0.00043 0.00001 0.00222 0.11464 0.00613 0.00000 0.72354 0.00062 0.00493 0.01311	0.00868 0.01224 0.11356 0.00035 0.00001 0.00199 0.11521 0.00611 0.00000 0.72425 0.00052 0.00459 0.01248	0.00869 0.01136 0.11452 0.00030 0.00001 0.00183 0.11559 0.00610 0.00000 0.72473 0.00046 0.00435 0.01206	0.00870 0.01018 0.11581 0.00025 0.00001 0.00162 0.11609 0.00607 0.00001 0.72537 0.00039 0.00403 0.01149	0.00939 0.00 0.11668 0.11 0.00021 0.00 0.00001 0.00 0.00148 0.01 0.011642 0.11 0.00604 0.00 0.72580 0.72 0.00034 0.00 0.000380 0.00	1732 0019 0001 0138 1667 0602 0001 2613
CASE= 4 P. ATM P. PSIA T. DEG K T. DEG K T. DEG C HO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F= 0.5000 7.3 2439.1 3930.7 7.0737-5 28.315 0.7337 1.1500 907.5	14.6540 1.0000 14.7 2470.8 3987.7 1.40084 28.384 0.6868 1.1557 914.6	F/A= 0 1.5000 22.0 2488.7 4019.9 2.0877-4 28.422 0.6615 1.1591 918.6	2.0000 29.4 2501.0 4042.1	PERCENT F 3.0000 44.1 2517.9 4072.4 4.1361-4 28.485 0.6217 1.1650 925.3	4.0000 58.8 2529.5 4093.3	6.0000 88.2 2545.3 4121.8	PHI= 1,000 10,000 147.0 2564.3 4156.0 1.3585-3 28,585 0.5618 1.1754 936.3	15.000 220.4 2578.6 4181.8 2.0286-3 28.616 0.5442 1.1789 939.8	20.000 293.9 2588.3 4199.3 2.6966-3 28.636 0.5323 1.1814 942.3	30.000 440.9 2601.5 4222.9 4.0284-3 28.664 0.5166 1.1849 945.6	587.8 73 2610.3 261 4238.9 425 5.3564-3 6.681 28.683 28 0.5062 0.4 1.1874 1.1	.000 34.8 17.0 50.9 18-3 .697 4984 1892 49.6
MOLE FRACTIONS AR CO CO2 H02 H20 H20 N0 N2 O OH	0.00853 0.03123 0.09887 0.00208 0.00000 0.00598 0.11289 0.00525 0.71200 0.00175 0.00773 0.01369	0.00855 0.02860 0.10181 6.00160 0.00000 0.00532 0.11442 0.00527 0.71372 0.00138 0.00706 0.01227	0.00856 0.02706 0.10353 0.00136 0.00000 0.00494 0.11528 0.00526 0.71470 0.00119 0.00666	0.00857 0.02537 0.10474 0.00122 0.00000 0.00469 0.11587 0.00524 0.71538 0.00107 0.00637 0.00637	0.00858 0.02445 0.10644 0.00103 0.00000 0.00434 0.11667 0.00520 0.71631 0.00091 0.00598 0.01010	0.00859 0.02338 0.10762 0.00091 0.00000 0.11721 0.00516 0.71696 0.00081 0.00570 0.00950	0.00860 0.02189 0.10926 0.00076 0.00000 0.00378 0.11795 0.00509 0.71786 0.00069 0.00531 0.00881	0.00861 0.02007 0.11127 0.00061 0.00000 0.00340 0.11882 0.00498 0.71894 0.00055 0.00483 0.00791	0.00862 0.01866 0.11281 0.00050 0.00000 0.00312 0.11947 0.00488 0.71976 0.00446 0.00446	0.00863 0.01770 0.11388 0.00044 0.00001 0.00293 0.11991 0.00480 0.72033 0.00040 0.00421	0.00864 0.01638 0.11532 0.00001 0.00001 0.00268 0.12050 0.00467 0.72110 0.00033 0.00387 0.00614	0.11631 0.11 0.00032 0.00 0.00001 0.00 0.00251 0.00 0.12089 0.12 0.00458 0.00 0.72162 0.72 0.00029 0.00	1480 1706 0028 0001 0238 2118 0450 2202 0026 0346

AR 1.000000 C 1.000000 0 N 2.000000	1.906699 0.000 0.000000 0.000 2.000000 0.000 0.000000 0.000 0.000000 0.000	0.000000 00 00 000000 0 00 000000 0	0.000000 0.000000 0.000000	00.00000000 -9 0.01285800 0.00045600 0.75525296 0.23143297	0.00 G 0.00 G 0.00 G 0.00 G 0.00 G	1100.000 0 1100.000 0	0.80700 0.00000 0.00000 0.00000 0.00000	
CASE= 6 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGIIKI GAMMA ISI SON VEL,M/SEC	0/F=146.5400 0.5000 1.0000 7.3 14.7 1333.5 1333.5 1940.5 1940.5 1.3236-4 2.6473-4 28.966 28.966 0.2905 0.2905 1.3091 1.3092 707.9 707.9	22.0 29.4 1333.5 1333.5 1940.5 1940.5 3.9709-4 5.2945-4 28.966 28.966 0.2905 0.2905 1.3092 1.3092	44.1 1333.5 1940.5 7.9417-4 1. 28.966 0.2905 1.3092	4.0000 6.0000 58.8 88.2 1333.5 1333.5 1940.5 1940.5	HI = 0.1000 10.000 147.0 1333.5 1940.5 2.6473-3 3 28.966 0.2905 1.3092 707.9	15.000 20.000 220.4 293.9 1333.5 1333.5 1940.5 1940.5 28.966 28.966 0.2905 0.2905 1.3092 1,3092 707.9 707.9	30.000 40.000 50.000 440.9 587.8 734.8 1333.5 1333.5 1333.5 1940.5 1940.5 1940.5 7,9419-3 1.0589-2 1.3237-2 28.966 28.967 28.967 0.2905 0.2905 0.2905 1.3092 1.3092 707.9 707.9 707.9	3
MOLE FRACTIONS AR CO2 H20 N0 N02 N2 OH	0.00926 0.00926 0.01439 0.01439 0.01343 0.01343 0.00050 0.00050 0.00000 0.00050 0.77539 0.77539 0.00001 0.00001 0.18702 0.18702	0.01439 0.01439 0.01343 0.01343 0.00050 0.00050 0.00001 0.00001 0.77539 0.77539 0.00001 0.00000	0.01439 0 0.01343 0 0.00050 0 0.00001 0 0.77539 0 0.00000 0	0.00926 0.01439 0.01439 0.01343 0.0050 0.00050 0.00001 0.77539 0.00000 0.00000 0.18701 0.18701	0.01439 0.01343 0.00050 0.00001 0.77539 0.00000	0.00926 0.00926 0.01439 0.01439 0.01343 0.01343 0.00050 0.00050 0.00002 0.00050 0.77539 0.77539 0.00000 0.00000 0.18700 0.18700	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.00050 0.00050 0.00050 0.00002 0.00003 0.00050 0.77539 0.77539 0.77539 0.00000 0.00000 0.00000 0.18700 0.18699	3
CASE= 6 P, ATM P, PSIA T, DEG K T, DEG K RHO, G/CC M, MOL HT CP, CAL/IG)IKI GAMMA (S) SON VEL,M/SEC	0/F= 73.2700 0.5000 1.0000 7.3 14.7 1551.2 1551.2 2332.4 2332.5 1.1379-4 2.2757-4 28.967 28.967 0.3039 0.3039 1.2917 1.2919 758.4 758.4	22.0 29.4 1551.3 1551.3 2332.6 2332.6 3.4135-4 4.5513-4 28.968 28.968 0.3037 0.3036 1.2919 1.2920	44.1 1551.3 2332.7 6.8269-4 9. 28.968 0.3036 1.2921	4.0000 6.0000 58.8 88.2 1551.3 1551.3 2332.7 2332.7	HI= 0.2000 10.000 147.0 1551.4 2332.8 2.2756-3 3 28.968 0.3034 1.2922 758.5	15.000 20.000 220.4 293.9 1551.4 1551.4 2332.8 2332.8 4133-3 4.5511-3 28.968 28.968 0.3034 0.3034 1.2922 1.2922 758.6 758.6	30.000 40.000 50.000 440.9 587.8 734.8 1551.4 1551.4 1551.4 2332.8 2332.8 2332.8 2332.8 6.8266-3 9.1022-3 1.1378-2 28.968 28.968 28.968 0.3033 0.3033 0.3033 1.2923 1.2923 1.2923 758.6 758.6 758.6	
MOLE FRACTIONS AR CO2 H20 N0 N02 N2 OH	0.00920 0.00920 0.02829 0.02829 0.02665 0.02666 0.00147 0.00147 0.76972 0.76972 0.00007 0.00006 0.16459 0.16459	0.02829 0.02829 0.02666 0.02666 0.00147 0.00147 0.00001 0.00001 0.76972 0.76972 0.00005 0.00005	0.02829 0 0.02666 0 0.00147 0 0.00001 0 0.76972 0 0.00005 0	0.00147 0.00147 0.00001 0.00001 0.76972 0.76972 0.00004 0.00004	0.02829 0.02667 0.00147 0.00002 0.76972 0.00003	0.00920 0.00920 0.02829 0.02829 0.02667 0.02667 0.00147 0.00147 0.00002 0.00003 0.76972 0.76973 0.00003 0.00003 0.16459 0.16458	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02668 0.02668 0.02668 0.00147 0.00147 0.00147 0.00003 0.00004 0.00004 0.76973 0.76973 0.76972 0.00003 0.00002 0.00002 0.16458 0.16457 0.16457	1

P, ATM 0.50	.3 14.7 .0 2574.1 .1 4173.8 -5 1.3368-4 53 28.236 25 0.7672 36 1.1489	2595.8 261 4212.8 424 1.9917-4 2.643 28.283 28. 0.7373 0.7 1.1521 1.1	3.4 44.6 3.9 2631.7 3.0 4277.4 3-4 3.9400-4 316 28.366 370 0.6899	4.0000 58.8 2646.2 4303.4 5.2304-4 7. 28.393 0.6715 1.1599	6.0000 88.2 2665.9 4339.0	HI= 0.950 10.000 147.0 2689.9 4382.1 1.2906-3 28.488 0.6178 1.1676 957.4	15.000 220.4 2708.1 4414.9	20.000 293.9 2720.6 4437.4 2.5581-5 0.5816 1.1735 964.2	30.000 440.9 2737.6 4467.9 3.8183-3 28.591 0.5621 1.1770 968.0	40.000 587.8 2749.1 4488.7 5.0742-3 28.616 0.5490 1.1795 970.6	50.000 734.8 2757.8 4504.3 6.3269-3 28.635 0.5392 1.1814 972.6
MOLE FRACTIONS AR CO 0.008 CO2 0.087 H 0.003 HO2 0.006 H20 0.103 N0 0.008 N02 0.000 N2 0.708 0 0.003 OH 0.011	82 0.03299 47 0.09067 40 0.00267 00 0.00001 78 0.00604 09 0.10492 05 0.00829 00 0.00000 78 0.71076 68 0.00301 41 0.01067	0.00855 0.00 0.03128 0.03 0.09258 0.05 0.00230 0.00 0.00001 0.07 0.00561 0.10 0.10596 0.10 0.00841 0.00 0.71'50 0.71 0.00266 0.71 0.00266 0.00 0.10221 0.00 0.10221 0.00	0.07 0.0283 0.0958 0.06 0.00176 0.01 0.0006 0.32 0.0049 0.49 0.0085 0.00 0.00006 0.00000 0.00000 0.0001 0.0001 0.0001 0.0001 0.0001	0.02711 0 0.09724 0 0.00156 0 0.00001 0 0.00464 0 0.10832 0 0.00863 0 0.71456 0 0.71456 0 0.00193 0	0.00860 0.02537 0.09916 0.00132 0.00001 0.00427 0.10924 0.00868 0.00000 0.71562 0.00167 0.00167	0.00861 0.02321 0.00106 0.00106 0.00001 0.00382 0.11034 0.00873 0.00001 0.71692 0.00139 0.00797 0.01639	0.00862 0.02152 0.00152 0.00089 0.00001 0.00348 0.11117 0.00874 0.00001 0.71791 0.00120 0.00749	0.00863 0.02033 0.10472 0.00078 0.00001 0.00325 0.11173 0.00874 0.00001 0.71860 0.00107 0.00715	0.00864 0.01870 0.10651 0.00064 0.00001 0.00294 0.11250 0.00872 0.00001 0.71954 0.00091 0.00669 0.01418	0.00865 0.01757 0.10775 0.00056 0.00001 0.00273 0.11301 0.00870 0.00001 0.72018 0.00081 0.00636 0.01364	0.00866 0.01671 0.10869 0.00050 0.00001 0.00258 0.11339 0.00868 0.00001 0.72067 0.00074 0.00612 0.01323
CASE= 7 0/	F= 14.6540	F/A= 0.06824	PERCENT	EUE: (20			_				
P, ATM 0.50	00 1.0000 .3 14.7 .5 2591.0 .9 4204.2 -5 1.3218-4 17 28.103 95 0.7927 21 1.1471	1.5000 2.0 22.0 2 2613.6 26 4244.8 427 1.9690-4 2.612 28.152 28 0.7620 0.7	000 3.000 3.4 44. 3.4 2651. 3.1 4312.3 7-4 3.8934-4 186 28.23 113 0.7134	4.0000 58.8 2666.2 4339.5 5.1678-4 7. 28.265 0.6947 1.1577	6.0000 88.2 2687.0 4376.9	HI= 1,000 10,000 147,0 2712,3 4422,5 1,2744-3 28,365 0,6399 1,1650 962,4	15.000 220.4 2731.7 4457.3	20.000 293.9 2745.0 4481.3 2.5248-3 28.435 0.6032 1.1706 969.3	30.000 440.9 2763.2 4514.0 3.7674-3 28.474 0.5835 1.1738 973.2	40.000 587.8 2775.6 4536.4 5.0054-3 28.500 0.5702 1.1762 975.9	50.000 734.8 2785.0 4553.3 6.2400-3 28.520 0.5603 1.1780 978.0

```
CASE= 1 0/F= 13.9562
                                 F/A= 0.07165
                                                 PERCENT FUEL= 6.6862
                                                                          PH1= 1.0500
                                                                    6,0000 10,000 15.000
                                 1,5000 2,0000 3,0000
                                                            4.0000
                                                                                              20.000
                                                                                                      30.000
                                                                                                                40.000
P, PSIA
                         14.7
                                 22.0
                                          29.4
                                                   44.1
                                                             58.8
                                                                      88.2
                                                                             147.0
                                                                                     220.4
                                                                                              293.9
                                                                                                       440.9
                                                                                                                 587.8
                                 2280.8
T, DEG K
                2253.3 2271.3
                                          2287.0
                                                   2295.0
                                                            2300.2
                                                                    2306.8
                                                                             2313.9
                                                                                      2318.6
                                                                                              2321.5
                                                                                                       2325.0
                                                                                                                2327.2
                                                                                                                         2328.6
T, DEG F
                                                 3671.3
                                                                                                       3725.4
                3596.3 3628.7
                                 3645.7
                                          3656.9
                                                           3680.7
                                                                    3692.5
                                                                             3705.3 3713.8
                                                                                              3719.1
                                                                                                                3729.2
                                                                                                                         3731.8
RHO, G/CC
              7.7129-5 1.5324-4 2.2907-4 3.0473-4 4.5576-4 6.0654-4 9.0764-4 1.5089-3 2.2594-3 3.0094-3 4.5084-3 6.0066-3 7.5044-3
M, MOL WT
                28.522
                       28,560
                                 28.580
                                          28.593
                                                         28.621
                                                                    28.634
                                                                             28,649
                                                                                     28.658
                                                                                                       28.671
                                                   28.610
                                                                                              28.664
CP, CAL/(G)(K)
               0.5476
                         0.5109
                                 0.4910
                                          0.4777
                                                                    0.4327
                                                                             0.4154
                                                                                              0.3959
                                                   0.4599
                                                           0.4481
                                                                                      0.4034
                                                                                                       0.3866
                                                                                                                0.3810
GAMMA (S) 1.1759
                       1.1846
                                 1.1898
                                         1.1936 1.1991 1.2030
                                                                    1.2084
                                                                            1.2151
                                                                                      1,2201 1,2234
                                                                                                       1,2277
                                                                                                                1.2305
                                                                                                                         1.2325
SON VEL, M/SEC
              878.9
                       885.0
                                  888.5
                                         890.9 894.3
                                                          896.6 899.7
                                                                              903.3
                                                                                      905.9
                                                                                               907.6
                                                                                                       909.8
                                                                                                                911.2
                                                                                                                          912.2
MOLE FRACTIONS
AR
               0.00857 0.00858 0.00858 0.00859 0.00859 0.00860 0.00860 0.00860 0.00861 0.00861
                                                                                                      0,00861 0,00861 0,00861
CO
              0.02399 0.02239 0.02154 0.02098 0.02025 0.01978 0.01918 0.01854 0.01812 0.01786 0.01756
                                                                                                              0.01737 0.01725
C02
             0.11316 0.11494 0.11589 0.11651 0.11733 0.11785 0.11851 0.11922 0.11969 0.11997
                                                                                                      0.12031 0.12051 0.12065
             0.00074 0.00055 0.00046 0.00041 0.00034 0.00030 0.00025 0.00019 0.00016 0.00014 0.00011 0.00010 0.00009
Н
             0.00486 0.00445 0.00424 0.00441 0.00392 0.00381 0.00367 0.00353 0.00343 0.00337 0.00330 0.00326 0.00324 0.12381 0.12471 0.12519 0.12550 0.12591 0.12617 0.12650 0.12686 0.12710 0.12752 0.12743 0.12754 0.12762 0.00177 0.00159 0.00148 0.00139 0.00127 0.00118 0.00106 0.00090 0.00079 0.00071 0.00061 0.00054 0.00050
H2
H20
NO
N2
              0.71667 0.71772 0.71827 0.71864 0.71913 0.71944 0.71985 0.72029 0.72059 0.72078 0.72101
                                                                                                              0.72114 0.72124
              0.00030 0.00020 0.00016 0.00013 0.00010 0.00008 0.00006 0.00004 0.00003 0.00002 0.00002
0
                                                                                                              0.00001 0.00001
OH
               0.00291 0.00245 0.00249 0.00202 0.00178 0.00162 0.00141 0.00117 0.00100 0.00089 0.00075 0.00067 0.00061
               0.00322 0.00241 0.00199 0.00172 0.00139 0.00117 0.00091 0.00065 0.00048 0.00039 0.00028 0.00022 0.00018
    CASE= 1 0/F= 13,3218
                                 F/A= 0.07506
                                                 PERCENT FUEL= 6.9824
                                                                          PHI = 1.1000
P, ATM 0.5000
P, PSIA 7.3
T, DEG K 2245.5
T, DEG F 3582.2
                       1.0000
                                 1,5000 2,0000
                                                   3,0000 4,0000 6,0000 10,000 15,000
                                                                                              20,000
                                                                                                       30,000
                                                                                                              40.000
                                 22.0
                         14.7
                                          29.4
                                                   44.1
                                                             58.8
                                                                    88.2
                                                                             147.0
                                                                                     220.4
                                                                                              293.9
                                                                                                       440.9
                                                                                                              587.8
                                                                                                                        734.8
                       2258.6
3605.7
                                        2268.7 2273.5
3624.0 3632.6
                                                                    2279.8
                                                                                                                2289.1
                                 2264.9
                                                           2276.4
                                                                             2283.2
                                                                                      2285.4
                                                                                              2236.7
                                                                                                       2288.2
                                                                                                                         2289.7
                                 3617.0
                                                          3637.7 3643.9
                                                                           3650.1 3654.0
                                                                                             3656.4
                                                                                                       3659.1
                                                                                                                3660.7
                                                                                                                         3661.8
RHD, G/CC 7.6872-5 1.5300-4 2.2897-4 3.0485-4 4.5648-4 6.0800-4 9.1084-4 1.5161-3 2.2724-3 3.0285-3 4.5402-3 6.0516-3 7.5628-3 M, MOL WT 28.328 28.356 28.369 28.376 28.386 28.392 28.399 28.406 28.410 28.413 28.416 28.418 28.419
CP, CAL/(G)(K) 0.4847 0.4482
                                 0.4303
                                         0.4191
                                                   0.4054
                                                           0.3971
                                                                    0.3872
                                                                             0.3774
                                                                                      0.3713
                                                                                              0.3677
                                                                                                       0.3635
                                                                                                                0.3611
                                                                                                                         0.3595
GAMMA (S) 1.1932 1.2048
SON VEL,M/SEC 886.8 893.2
                                                                           1.2348
                                 1.2113
                                         1.2157
                                                  1,2214 1,2251
                                                                    1,2298
                                                                                     1,2380 1,2400
                                                                                                       1.2423
                                                                                                                1.2437
                                                                                                                         1.2447
                                           899.0
                                                    901.9
                                                          903.7
                                                                     906.0
                                                                            908.4
                                                                                       910.0
                                                                                              910.9
                                                                                                       912.0
                                                                                                                 912.7
                                                                                                                          913.1
AR 0.00848 0.00849 0.00849 0.00850 0.00850 0.00850 0.00850 0.00851 0.00851
                                                                                                      0.00851 0.00851 0.00851
CO
              0.03490 0.03395
                                0.03351
                                         0.03323 0.03291 0.03271
                                                                   0.03249 0.03226 0.03213 0.03205
                                                                                                      0.03196 0.03191 0.03187
             C02
```

0.70988 0.71066 0.71104 0.71127 0.71157 0.71174 0.71196 0.71218 0.71232 0.71240 0.71250 0.71256 0.71260 0.00019 0.00011 0.00008 0.00006 0.00005 0.00004 0.00003 0.00002 0.00001 0.00001 0.00001 0.00000 0.00000

0.00225 0.00178 0.00154 0.00138 0.00117 0.00104 0.00087 0.00070 0.00058 0.00051 0.00042 0.00037 0.00033

0.00124 0.00079 0.00059 0.00048 0.00035 0.00028 0.00020 0.00012 0.00009 0.00007 0.00005 0.00003 0.00003

н H2 H20 NO N2

0

OH

CASE=	3 0/F= 48 0.5000 7.3 1331.8 1937.5 1.3255-4 2 28.970 0.2972 1.3001 704.9	1.0000 14.7 1331.8 1937.5	F/A= 0. 1.5000 22.0 1331.8 1937.5 3.9763-4 28.970 0.2972 1.3001 704.9	2.0000 29.4 1331.8 1937.5	PERCENT F 3.0000 44.1 1331.8 1937.5 7.9527-4 28.970 0.2972 1.3001 704.9	UEL = 2. 4.0000 58.8 1331.8 1937.5 1.0604-3 28.970 0.2971 1.3001 704.9	6.0000 88.2 1331.8 1937.5	PHI= 0.300 10.000 147.0 1331.8 1937.5 2.6509-3 28.970 0.2971 1.3001 705.0	15.000 220.4 1331.8 1937.5	20.000 293.9 1331.8 1937.5 5.3018-3 28.970 0.2971 1.3001 705.0	30.000 440.9 1331.8 1937.5 7.9527-3 28.970 0.2971 1.3001 705.0	40.000 587.8 1331.8 1937.5 1.0604-2 28.970 0.2971 1.3001 704.9	50.000 734.8 1331.8 1937.5 1.3254-2 28.970 0.2971 1.3001 704.9
MOLE FRACTIONS AR CO2 H20 N0 N02 N2 OH O2	0.04201 (0.03976 (0.00043 (0.00000 (0.76515 (0.00001 (0.0	0.00914 0.04201 0.03976 0.00043 0.00000 0.76515 0.00001 0.14350	0.00914 0.04201 0.03976 0.00043 0.00000 0.76515 0.00001 0.14350	0.00914 0.04201 0.03976 0.00043 0.00000 0.76515 0.00001 0.14350	0.00914 0.04201 0.03976 0.00043 0.00001 0.76515 0.00001 0.14350	0.00914 0.04201 0.03976 0.00043 0.00001 0.76515 0.00001 0.14350	0.00914 0.04201 0.03976 0.00043 0.00001 0.76515 0.00001 0.14350	0.00914 0.04201 0.03976 0.00043 0.00001 0.76515 0.00000 0.14350	0.00914 0.04201 0.03976 0.00043 0.00001 0.76515 0.00000 0.14350	0.00914 0.04201 0.03976 0.00043 0.00001 0.76515 0.00000 0.14349	0.00914 0.04201 0.03977 0.00043 0.00002 0.76515 0.00000 0.14349	0.00914 0.04201 0.03977 0.00043 0.00002 0.76515 0.00000 0.14349	0.00914 0.04201 0.03977 0.00043 0.00002 0.76515 0.00000 0.14349
CASE= P. ATM P. PSIA T. DEG K T. DEG K T. DEG C M. MOL WT CP. CAL/(GI(K) GAMMA IS) SON VEL,M/SEC	0.5000 7.3 1542.1 2316.0	6.6350 1.0000 14.7 1542.1 2316.1 .2894-4 28.971 0.3102 1.2841 753.9	F/A: 0. 1.5000 22.0 1542.2 2316.2 3.4341-4 28.971 0.3101 1.2842 753.9	2.0000 29.4 1542.2 2316.2	PERCENT F 3.0000 44.1 1542.2 2316.3 6.8679-4 28.971 0.3100 1.2843 753.9	4.0000 58.8 1542.2 2316.3	6571 F 6.0000 88.2 1542.3 2316.4 1.3735-3 28.971 0.3099 1.2844 754.0	HI= 0.400 10.000 147.0 1542.3 2316.4 2.2892-3 28.971 0.3098 1.2845 754.0	15.000 220.4 1542.3 2316.4 3.4338-3 28.971 0.3097 1.2845 754.0	20.000 293.9 1542.3 2316.5 4.5784-3 28.971 0.3097 1.2845 754.0	30.000 440.9 1542.3 2316.5 6.8675-3 28.971 0.3097 1.2846 754.0	40.000 587.8 1542.3 2316.5 9.1567-3 28.971 0.3096 1.2846 754.0	50.000 734.8 1542.3 2316.5 1.1446-2 28.972 0.3096 1.2846 754.1
MOLE FRACTIONS AR CO2 H2O NO NO2 N2	0.05554 (0.05263 (0.00121 (0.00908 0.05554 0.05264 0.00121 0.00000	0.00908 0.05554 0.05264 0.00121 0.00001	0.00908 0.05554 0.05264 0.00121	0.00908 0.05554 0.05264 0.00121 0.00001	0.00908 0.05554 0.05265 0.00121 0.00001	0.00908 0.05554 0.05265 0.00121 0.00001	0.00908 0.05554 0.05265 0.00121 0.00001	0.00908 0.05554 0.05265 0.00121 0.00002	0.00908 0.05554 0.05266 0.00121 0.00002 0.75971	0.00908 0.05554 0.05266 0.00121 0.00002	0.00908 0.05554 0.05266 0.00121 0.00003	0.00908 0.05554 0.05266 0.00121 0.00003

P, ATM 0.50	00 1.0000 1.5000 .3 14.7 22.1 2.1 2484.3 2502. .1 4012.1 4044.4 -5 1.3853-4 2.0658- 71 28.240 28.27 13 0.6916 0.664 199 1.1558 1.159	29.4 44.1 4 2514.9 2531.4 5 4067.1 4097.7 4 2.7433-4 4.0925-4 9 28.305 28.342 5 0.6462 0.6216 4 1.1620 1.1658	4.0000 6.0000 58.8 88.2 2543.5 2559.3 4118.6 4147.1 5.4364-4 8.1139-4 28.366 28.400 0.6049 0.5825 1.1685 1.1724	PHI= 1.0500 10.000 15.000 147.0 220.4 2578.1 2592.1 4180.9 4206.1 1.3443-3 20077-3 28.439 28.469 0.5559 0.5361 1.1774 1.1815 942.0 945.7	20.000 30.000 293.9 440.9 2601.6 2614.1 4223.1 4245.7 2.6690-3 39880-3 28.489 28.515 0.5227 0.5048 1.1844 1.1886 948.3 951.8	40.000 50.000 587.8 734.8 2622.5 2628.6 4260.7 4271.8 5.3036-3 6.6170-3 28.532 28.545 0.4927 0.4837 1.1917 1.1940 954.3 956.1
MOLE FRACTIONS AR CO CO CO CO H CO H CO H2 CO H2 CO H2 CO	002 0.03652 0.0350 44 0.09927 0.1009 152 0.00197 0.0016 183 0.00712 0.0067 0.01771 0.1186 149 0.00441 0.0043 148 0.70825 0.7092 157 0.00121 0.0010 149 0.00677 0.0055	7 0.03/04 0.03260 9 0.10207 0.10368 9 0.00151 0.00129 2 0.00645 0.00604 4 0.11927 0.12013 4 0.00428 0.00417 6 0.70996 0.71093 3 0.00091 0.00074 4 0.00604 0.00561	0.10480 0.10634 0.00115 0.00098 0.00583 0.00549 0.12071 0.12150 0.00408 0.00393 0.71159 0.71251 0.00067 0.00056 0.00531 0.00489	0.00854 0.00855 0.02854 0.02726 0.10822 0.10963 0.00079 0.00066 0.00510 0.00481 0.12243 0.12312 0.00372 0.00353 0.71361 0.71445 0.00043 0.00035 0.00437 0.00398 0.00425 0.00366	0.00856 0.00856 0.02640 0.02524 0.11059 0.11188 0.00058 0.00049 0.00462 0.00436 0.12358 0.12418 0.00339 0.00318 0.71502 0.71578 0.00030 0.00024 0.00370 0.00333 0.00326 0.00275	0.00857 0.00857 0.02446 0.02388 0.11274 0.11338 0.00043 0.00039 0.00419 0.00407 0.12459 0.12488 0.00302 0.00290 0.71630 0.71668 0.00020 0.00017 0.00308 0.00289 0.00242 0.00218
P, ATM 0.50	1.0000 1.500 1.3 14.7 22.4 1.9 2489.1 2506.4 1.5 4020.7 4051.4 1.5 1.3748-4 2.0506-1 1.14 28.080 28.11 1.18 0.6672 0.637 1.28 1.1599 1.164	29.4 44.1 4 2518.2 2534.1 9 4073.1 4101.6 4 2.7238-4 4.0649-4 7 28.141 28.172 3 0.6169 0.5893 2 1.1674 1.1721	4.0000 6.0000 58.8 88.2 2544.8 2559.0 4120.9 4146.5 5.4013-4 8.0655-4 28.197 28.227 0.5706 0.5454 1.1756 1.1806	PHI= 1,1000 10,000 15,000 147.0 220.4 2575.4 2587.2 4176.0 4197.2 1,3373-3 1,9985-3 28.261 28.285 0.5158 0.4940 1,1873 1,1927 948.5 952.4	20.000 30.000 293.9 440.9 2534.9 2604.7 4211.0 4228.7 2.6583-3 3.9752-3 28.301 28.321 0.4796 0.4607 1.1966 1.2021 955.1 958.8	40.000 50.000 587.8 734.8 2610.9 2615.4 4240.0 4248.0 5.2900-3 6.6033-3 28.334 28.343 0.4485 0.4397 1.2060 1.2089 961.2 963.1
MOLE FRACTIONS AR CO 0.005 CO 0.047 CO2 0.093 H 0.002 H2 0.016 H20 0.116 N0 0.003 N2 0.700 O 0.001 OH 0.006	755 0.04536 0.04410 751 0.09563 0.0970 794 0.00231 0.0019 799 0.00938 0.0089 779 0.12052 0.12140 770 0.00353 0.00341 770 0.00353 0.7034 770 0.70243 0.7034 770 0.00099 0.0008	0 0.04323 0.04203 7 0.09807 0.09944 9 0.00179 0.00153 3 0.00872 0.00836 3 0.12213 0.12300 0 0.00330 0.00313 1 0.70408 0.70500 2 0.00072 0.0058	0.04121 0.04011 0.10037 0.10162 0.00137 0.00116 0.00813 0.00781 0.12359 0.12437 0.00301 0.00281 0.70562 0.70647 0.00050 0.00040	0.00846 0.00847 0.03882 0.03789 0.10308 0.10414 0.00094 0.00079 0.00746 0.00721 0.12527 0.12591 0.00255 0.00233 0.70745 0.70817 0.00029 0.00023 0.000365 0.00324	0.00847 0.00848 0.03728 0.03650 0.10483 0.10571 0.00070 0.00059 0.12633 0.12687 0.00217 0.00159 0.70865 0.70926 0.00019 0.00014 0.00296 0.00259	0.00848 0.00849 0.03600 0.03565 0.10627 0.10667 0.00052 0.00047 0.00672 0.00663 0.12722 0.12747 0.00179 0.00167 0.70966 0.70995 0.00011 0.00010

CASE= 6 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC 1 M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0.5000 7.3 1753.9 2697.2	48.8467 1.0000 14.7 1754.2 2697.9 2.0123-4 28.967 0.3184 1.2754 801.4	F/A= 0. 1.5000 22.0 1754.4 2698.2 3.0182-4 28.967 0.3180 1.2758 801.5	2.0000 29.4 1754.5 2698.4	PERCENT F 3.0000 44.1 1754.7 2698.7 6.0357-4 28.968 0.3174 1.2763 801.7	4.0000 58.8 1754.8 2698.9	6.0000 88.2 1754.9 2699.1	HI= 0.300 10.000 147.0 1755.0 2699.3 2.0116-3 28.968 0.3166 1.2770 802.0	0 15.000 220.4 1755.1 2699.4 3.0172-3 28.969 0.3164 1.2771 802.1	20.000 293.9 1755.1 2699.5 4.0229-3 28.969 0.3163 1.2772 802.1	30.000 440.9 1755.2 2699.7 6.0341-3 28.969 0.3162 1.2773 802.2	40.000 587.8 1755.2 2699.7 8.0454-3 28.969 0.3161 1.2774 802.2	50.000 734.8 1755.3 2699.8 1.0057-2 28.969 0.3160 1.2775 802.2
CO CO2 H2 H2O NO NO2 N2 OH	0.00914 0.00002 0.04198 0.00001 0.03958 0.00307 0.00000 0.76374 0.00004 0.00036 0.14207	0.00914 0.00001 0.04199 0.00000 0.03961 0.00307 0.00001 0.76375 0.00003 0.00030 0.14209	0.00914 0.00001 0.04199 0.00000 0.03962 0.00307 0.00001 0.76376 0.00002 0.00027 0.14209	0.00914 0.00001 0.04199 0.00000 0.03963 0.00307 0.00001 0.76376 0.00002 0.00026 0.14210	0.00914 0.00001 0.04200 0.00000 0.07965 0.00308 0.00001 0.76377 0.00002 0.00023	0.00914 0.00001 0.04200 0.00000 0.03965 0.00308 0.00001 0.76377 0.00001 0.00022	0.00914 0.00001 0.04200 0.00000 0.03967 0.00308 0.00002 0.76378 0.00001 0.00019	0.00914 0.00000 0.04200 0.00000 0.03968 0.00308 0.00002 0.76378 0.00001 0.00017	0.00914 0.00000 0.04200 0.00000 0.03369 0.00308 0.00003 0.76379 0.00001 0.00015	0.00914 0.00000 0.04200 0.00000 0.03969 0.00308 0.76379 0.00001 0.00014 0.14211	0.00914 0.00000 0.04200 0.00000 0.03970 0.00308 0.00004 0.76379 0.00001 0.00013	0.00914 0.00000 0.04200 0.00000 0.03970 0.00308 0.00004 0.76379 0.00000 0.00012	0.00914 0.00000 0.04200 0.00000 0.03971 0.00308 0.00005 0.76379 0.00000 0.00011 0.14210
CASE= 6 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC 9 M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F= 0.5000 7.3 1940.7 3033.6 0.0916-5 28.957 0.3413 1.2555 836.4	36,6350 1,0000 14,7 1942,3 3036,4 1,8171-4 28,960 0,3378 1,2579 837,5	F/A= 0. 1.5000 22.0 1943.0 3037.7 2.7247-4 28.961 0.3362 1.2590 838.0	2.0000 29.4 1943.5 3038.6	PERCENT F 3.0000 44.1 1944.1 3039.6 5.4469-4 28.963 0.3339 1.2606 838.8	4.0000 58.8 1944.4 3040.3	6571 P 6.0000 88.2 1944.9 3041.1 1.0890-3 28.965 0.3322 1.2619 839.3	HI= 0.400 10.000 147.0 1945.4 3042.0 1.8146-3 28.966 0.3312 1.2626 839.7	15.000 220.4 1945.7 3042.6	20.000 293.9 1945.9 3043.0 3.6283-3 28.967 0.3300 1.2634 840.0	30.000 440.9 1946.2 3043.4 5.4418-3 28.968 0.3295 1.2638 840.2	40.000 587.8 1946.3 3043.7 7.2552-3 28.968 0.3292 1.2641 840.3	50.000 734.8 1946.5 3043.9 9.0685-3 28.969 0.3289 1.2642 840.4
CO CO2 H H2 H2 H2O N0 N02 N2 OH	0.00907 0.00018 0.05534 0.00001 0.00000 0.00004 0.05203 0.00509 0.00000 0.75740 0.00020 0.00020 0.00115 0.11949	0.00907 0.00013 0.05539 0.00001 0.00000 6.00003 0.05213 0.00511 0.00001 0.75746 0.00015 0.00098	0.00907 0.00010 0.05542 0.00000 0.00002 0.00519 0.00513 0.00001 0.75750 0.00012 0.00012 0.00089 0.11955	0.00907 0.00009 0.05543 0.00000 0.00000 0.00002 0.05222 0.00513 0.00001 0.75752 0.00010 0.00083 0.11956	0.00907 0.00007 0.05545 0.00000 0.00000 0.005226 0.00514 0.00001 0.75754 0.00007 0.00075 0.11958	0.00907 0.00006 0.05546 0.00000 0.00000 0.00515 0.00001 0.75756 0.00007 0.00070 0.11959	0.00908 0.00005 0.05548 0.00000 0.00000 0.00001 0.05233 0.00515 0.00002 0.75758 0.00006 0.00064 0.11960	0.00908 0.00004 0.05549 0.00000 0.00000 0.00001 0.05237 0.00516 0.00002 0.75760 0.00005 0.00005 0.00056	0.00908 0.00003 0.05550 0.00000 0.00001 0.05240 0.00517 0.00003 0.75761 0.00004 0.00051 0.00051	0.00908 0.00003 0.05551 0.00000 0.00000 0.00001 0.05242 0.00517 0.00003 0.75762 0.00003 0.00047 0.11963	0.00908 0.00002 0.05551 0.00000 0.00000 0.00001 0.05245 0.00517 0.00004 0.75763 0.00003 0.000043 0.11963	0.00908 0.00002 0.05552 0.00000 0.0001 0.00000 0.05246 0.00518 0.00004 0.75764 0.00002 0.00040 0.11963	0.00908 0.00002 0.05552 0.00000 0.00001 0.005247 0.00518 0.00005 0.75764 0.00002 0.00038 0.11963

CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2562.7 T, DEG F 4153.2 RHO, G/CC 6.6278-5 M, MOL WI 27.875 CP, CAL/(GIIK) 0.8617 GAMMA (S) 1.1418 SON VEL,M/SEC 934.2	1.5000 14.7 22.0 2603.0 2625.9 4225.6 4267.0 1.3091-4 1.9499-4 27.961 28.010 0.8026 0.7705 1.1469 1.1501	2.0000 3.000 29.4 44. 2641.9 2664. 4295.8 4335.	0 4.0000 6.0000 1 58.8 88.2 0 2679.3 2700.4 5 4363.1 4401.0 4 5.1169-4 7.6276-4 2 28.125 28.170 7 0.7000 0.6735 5 1.1578 1.1611	PHI= 1.0500 10.000 15.000 147.0 220.4 2726.0 2745.6 4447.1 4482.3 1.2618-3 1.8819-3 28.224 28.266 0.6422 0.6189 1.1654 1.1689 967.4 971.6	20.000 30.00 293.9 440. 2758.9 2777. 4506.4 4539. 2.4996-3 3.7299- 28.294 28.33 0.6031 0.582 1.1713 1.174 974.5 978.	9 587.8 734.8 2789.5 2798.9 1 4561.5 4578.3 3 4.9556-3 6.1781-3 2 28.359 28.378 0 0.5677 0.5570 9 1.1774 1.1794
MOLE FRACTIONS AR CO 0.00837 CO2 0.08396 H 0.00471 H02 0.00000 H2 0.10918 N0 0.0657 N2 0.69798 O 0.00329 OH 0.01129 O2 0.01423	0.08703 0.08886 0.00376 0.09886 0.00376 0.00328 0.00000 0.000000 0.00949 0.00899 0.11131 0.11252 0.00663 0.0064 0.70012 0.70136 0.00264 0.00231 0.01048 0.00938	0.00000 0.0000 0.00865 0.0081 0.i1336 0.1145 0.00663 0.0065 0.70223 0.7034 0.00209 0.0018 0.00962 0.0091	3 0.04185 0.04019 7 0.09339 0.09526 7 0.00231 0.00199 1 0.00001 0.00001 8 0.00785 0.00740 1 0.11530 0.11638 9 0.00654 0.00654 0 70429 0.70546 0 0.00162 0.00138 0 0.00872 0.00819	0.00848 0.00849 0.03810 0.03646 0.09761 0.09945 0.00163 0.00139 0.00001 0.00001 0.00686 0.00646 0.11769 0.11867 0.00630 0.00614 0.70691 0.70803 0.00112 0.00094 0.00752 0.00698	0.00850 0.0085 0.03532 0.0337 0.10074 0.1025 0.00124 0.0010 0.00001 0.0000 0.00618 0.0058 0.11934 0.1202 0.00601 0.0058 0.70881 0.7098 0.0062 0.0066 0.00643 0.0056	30 0.03262 0.03179 0.10374 0.10467 44 0.00092 0.00084 11 0.00055 0.00537 44 0.12085 0.12131 10 0.00565 0.00551 80 0.71061 0.71117 80 0.00059 0.00053 90 0.00553 0.00545
CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2569.7 T, DEG F 4165.8 RHO, G/CC 6.5742-5 M, MOL HT 27.725 CP, CAL//GJIKI 0.8573 GAMMA (S) 1.1428	14.7 22.0 2609.9 2632.7 4238.2 4279.2 11.2986-4 1.9344-4 27.811 27.860 0.7948 0.7607	2.0000 3.000 29.4 44. 2648.6 2670. 4307.8 4347. 2.5668-4 3.8252- 27.893 27.93 0.7375 0.706	0 4.0000 6.0000 1 58.8 88.2 4 2685.4 2705.9 0 4374.0 4411.0 4 5.0775-4 7.5701-4 9 27.971 28.015	PHI= 1.1000 10.000 15.000 147.0 220.4 2730.7 2749.2 4455.5 4488.9 1.2526-3 1.8688-3 28.066 28.105 0.6221 0.5965	20.000 30.00 233.9 440. 2761.9 2778. 4511.6 4542. 2.4826-3 3.7059- 28.132 28.16 0.5790 0.555	9 587.8 734.8 7 2790.1 2798.5 0 4562.4 4577.5 3 4.9253-3 6.1419-3 7 28.190 28.207
SON VEL, M/SEC 938.4				1,1692 1,1733 972,5 976,9	1.1763 1.180 979.9 984.	

CASE= 1 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2221.2 T, DEG F 3538.5 RHO, G/CC 7.7096-5 M, MOL WT 28.104 CP, CAL/(G IK) 0.4292 GAMMA (S) 1.2138 SON VEL, M/SEC 893.1	14.7 22.0 2229.5 2233.2 3553.3 3560.1 1.5371-4 2.3025-4 28.121 28.129 0.4044 0.3933	2.0000 3.00 29.4 44 2235.5 2236 3564.1 356 3.0674-4 4.596 28.133 28. 0.3867 0.3 1.2325 1.2	4.0000 .1 58.8 .2 2239.7 .0 3571.8 -4 6.1249-4 39 28.142 90 0.3745 64 1.2388	6.0000 88.2 2241.6 3575.3	HI = 1.1500 10.000 147.0 2243.5 3578.6 .5291-3 28.150 0.3641 1.2446 908.2	15.000 220.4 2244.7 3580.8	20.000 293.9 2245.4 3582.0 3.0562.0 3.0590 0.3590 1.2476 909.6	30.000 440.9 2246.2 3583.5 4.5826-3 28.155 0.3568 1.2489 910.2	40.000 587.8 2246.7 3584.4 6.1090-3 28.156 0.3556 1.2497 910.5	50.000 734.8 2247.1 3585.0 7.6353-3 28.157 0.3547 1.2502 910.8
MOLE FRACTIONS AR C0 0.04708 C02 0.09997 H 0.00095 H2 0.1131 H20 0.12736 N0 0.00059 N2 0.70226 0 0.00019 OH 0.00157 02 0.00043	0.04667 0.04650 0.10046 0.10068 0.00070 0.00058 0.01115 0.01106 0.12792 0.12818 0.00046 0.00039 0.70276 0.70296 0.00005 0.00004	0.04439 0.046 0.10681 0.106 0.00051 0.000 0.01104 0.016 0.0234 0.128 0.00035 0.000 0.00003 0.000 0.00089 0.000	27 0.04621 96 0.10104 42 0.60037 99 0.01097 53 0.12864 29 0.00026 29 0.70338 02 0.00001 74 0.00065	0.04613 0.10114 0.00030 0.01094 0.12878 0.00021 0.70350 0.00001 0.00054	0.00840 0.04605 0.10123 0.00024 0.01091 0.12892 0.00017 0.70362 0.00001 0.00042 0.00003	0.00840 0.04601 0.10129 0.00019 0.01089 0.12901 0.00014 0.70369 0.00000 0.00035 0.00002	0.00840 0.04598 0.10133 0.00017 0.01088 0.12906 0.00012 0.70374 0.00000 0.00030 0.00002	0.00840 0.04595 0.10136 0.00014 0.01087 0.12912 0.00010 0.70379 0.00000 0.00025	0.00840 0.04593 0.10139 0.00012 0.01086 0.12916 0.00009 0.70382 0.00000 0.00022 0.00001	0.00840 0.04592 0.10140 0.00011 0.01086 0.12918 0.00008 0.70384 0.00000 0.00019 0.000019
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2188.0 T, DEG F 3478.6	14.7 22.0 2193.2 2195.2 3488.1 3492.3 1.5490-4 2.3214-4 27.877 27.881 0.3828 0.3762 1.2369 1.2404	2.0000 3.00 29.4 44 2197.0 2198 3494.8 3499 3.0935-4 4.637 27.884 27.6 0.3723 0.36 1.2426 1.24	00 4.0000 .1 58.8 .6 2199.6 .8 3499.6 !-4 6.1808-4 88 27.890 77 0.3651 51 1.2467	6.0000 88.2 2200.8 3501.7	HI = 1.200 10.000 147.0 2202.0 3503.8 5438-3 27.895 0.3588 1.2503 905.9	15.000 220.4 2202.7 3505.2	20.000 293.9 22J3.2 3506.0 3.0862-3 27.897 0.3558 1.2522 906.8	30.000 440.9 2203.7 3506.9 4.6284-3 27.898 0.3544 1.2530 907.2	40.000 587.8 2204.0 3507.5 6.1705-3 27.899 0.3536 1.2535 907.4	50.000 734.8 2204.2 3507.9 7.7125-3 27.899 0.3531 1.2539 907.5

CASE= 3 P. ATM P. PSIA T. DEG K T. DEG F RHO, G/CC M, MOL HT CP, CAL/(G (K) GAMMA (S) SON VEL,M/SEC	0.5000 7.3 1738.4 2669.4	29.3080 1.0000 14.7 1738.8 2670.1 2.0304-4 28.970 0.3245 1.2690 795.8	F/A= 0 1.5000 22.0 1739.0 2670.5 3.0453-4 28.970 0.3240 1.2694 795.9	.03412 2.0000 29.4 1739.1 2670.7 4.0602-4 28.971 0.3237 1.2696 796.0	PERCENT F 3.0000 44.1 1739.3 2671.0 6.0898-4 28.971 0.3233 1.2699 796.2	4.0000 58.8 1739.4 2671.2	6.0000 88.2 1739.5 2671.4	HI = 0.500 10.000 147.0 1739.6 2671.6 2.0296-3 28.972 0.3225 1.2706 796.4	15.000 220.4 1739.7 2671.8	20.000 293.9 1739.8 2671.9 4.0589.72 0.3221 1.2709 796.6	30.000 440.9 1739.8 2672.0 6.0881-3 28.972 0.3220 1.2710 796.6	40.000 587.8 1739.9 2672.1 8.1173-3 28.972 0.3218 1.2711 796.7	50.000 734.8 1739.9 2672.1 1.0146-2 28.972 0.3218 1.2711 796.7
MOLE FRACTIONS AR CO CO2 H2 H20 N0 N02 N02 O 00	0.00902 0.00003 0.06886 0.00001 0.06520 0.00242 0.00000 0.75404 0.00003 0.00038 0.10000	0.00902 0.00002 0.06887 0.00001 0.06524 0.00242 0.00000 0.75406 0.75406 0.00002 0.00032	0.00902 0.00002 0.06888 0.00001 0.06525 0.00242 0.00001 0.75407 0.00002 0.00029 0.10002	0.00902 0.000902 0.06868 0.60000 0.04526 0.00243 0.00001 0.75407 0.00001 0.00027	0.00902 0.00001 0.06888 0.00000 0.04528 0.00243 0.00001 0.75408 0.00001 0.00025 0.10003	0.00902 0.00001 0.06889 0.00000 0.06529 0.00243 0.00001 0.75408 0.00001 0.00023 0.10003	0.00902 0.00001 0.06889 0.00000 0.06530 0.00243 0.00001 0.75409 0.00001 0.00021 0.10004	0.00902 0.00001 0.06889 0.00000 0.06531 0.00243 0.00001 0.75409 0.00001 0.00018 0.10004	0.00902 0.00001 0.06889 0.00000 0.06532 0.00243 0.00002 0.75410 0.00001 0.00001 0.10004	0.00902 0.00001 0.06889 0.00000 0.06533 0.00243 0.00002 0.75410 0.00000 0.00015 0.10004	0.00902 0.00000 0.06890 0.00000 0.06534 0.00243 0.00002 0.75410 0.00000 0.00014 0.10004	0.00902 0.00000 0.06890 0.00000 0.06534 0.00243 0.00003 0.75411 0.00000 0.00013 0.10004	0.00902 0.00000 0.06890 0.00000 0.06535 0.00243 0.00003 0.75411 0.00000 0.00012 0.10004
CASE= 3 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IG)(K) GAMMA (S)	0.5000 7.3 1920.0 2996.3 9.1907-5 28.960 0.3476	1.0000 14.7 1921.6 2999.2 1.8368-4 28.963	F/A= 0 1.5000 22.0 1922.4 3000.6 2.7542-4 28.964	2.0000 29.4 1922.9 3001.5	PERCENT F 3.0000 44.1 1923.5 3002.5 5.5058-4 28.967	4.0000 58.8 1923.8 3003.2 7.3398-4	6.0000 88.2 1924.3 3004.1 1.1007-3		15.000 220.4 1925.2 3005.6 2.7508-3	20.000 293.9 1925.4 3006.0 3.6674-3	30.000 440.9 1925.7 3006.5 5.5004-3		50.000 734.8 1925.9 3007.0 9.1661-3
SON VEL, M/SEC	1.2500	0.3437 1.2525 831.2	0.3419 1.2537 831.8	0.3408 1.2545 832.1	0.3394 1.2554 832.5	28.967 0.3386 1.2560 832.8	28,968 0,3375 1,2567 833,1	28.969 0.3364 1.2575 833.5	28.970 0.3357 1.2580 833.7	28,970 0,3352 1,2584 833,9	28.971 0.3346 1.2508 834.1	28.971 0.3343 1.2590 834.2	28,972 0.3340 1,2592 834.3

CASE= 4 0/F P, ATM 0.500 P, PS1A 7. T, DEG K 2456. T, DEG F 3961. RHO, G/CC 6.9073- M, MOL HT 27.84 CP, CAL/(G)(K) 0.678 GAMMA (S) 1.159 SON VEL,M/SEC 922.	0 1.0000 1.5000 3 14.7 22.0 2 2485.1 2500.6 5 4013.4 4041.4 5 1.3584-4 2.0422-4 3 27.904 27.936 4 0.6198 0.5880 2 1.1680 1.1735	29.4 44. 2511.0 2524. 4060.1 4084. 12.7138-4 4.0528- 27.958 27.958 0 0.5666 0.538 5 1.1776 1.183	0 4.0000 1 58.8 6 2533.6 6 4100.8 45.3882-4 6 28.005 2 0.5194 5 1.1878	6.0000 88.2 2545.2 4121.6 8.0523-4 28.029 0.4949	= 1,1500 10,000 15,000 147.0 220.4 2558.0 2566.7 4144.6 4160.4 3366-3 1,993-3 28,055 28,073 0,4674 0,4484 1,2019 1,2079 954.5 958.2	20.000 293.9 2572.2 4170.3 2.6611-3 28.084 0.4365 1.2120 960.7	30.000 440.9 2579.0 4182.6 3.9830-3 28.097 0.4217 1.2174 963.9	40.000 587.8 2583.2 4190.1 5.3037-3 28.106 0.4125 1.2210 966.0	50.000 734.8 2586.2 4195.4 6.6235-3 28.112 0.4062 1.2236 967.4
MOLE FRACTIONS AR 0.0083 C0 0.0567 C02 0.0889 H 0.0032 H2 0.0128 H20 0.1210 N0 0.0029 N2 0.6745 0 0.0010 0H 0.0062 02 0.0040	3 0.05499 0.05402 6 0.09102 0.09218 9 0.00258 0.00223 5 0.01219 0.01182 2 0.12275 0.12366 1 0.00268 0.0925 9 0.69622 0.6971 4 0.00074 0.00066 5 0.00542 0.0045	2 0.05°36 0.0524 0.09292 0.0938 0.00200 0.0017 0.01160 0.0112 0.12431 0.1251 0.00240 0.0022 0.00051 0.00051 0.00051 0.0004	9 0.05192 4 0.09461 1 0.00152 9 0.01110 4 0.12568 1 0.00207 1 0.69904 0 0.00034 2 0.00380	0.05117 0 0.09548 0 0.00129 0 0.01084 0 0.12639 0 0.00188 0 0.69974 0 0.00026 0		0.00838 0.04944 0.09751 0.00077 0.01028 0.12806 0.00130 0.70140 0.00011 0.00221 0.00054	0.00839 0.04901 0.09801 0.00064 0.01014 0.12849 0.00113 0.70183 0.00008 0.0008	0.00839 0.04875 0.09831 0.00057 0.01006 0.12875 0.00102 0.70210 0.00006 0.00168 0.00032	0.00839 0.04857 0.09852 0.00051 0.01001 0.12894 0.00093 0.70229 0.00005 0.00153 0.00026
CASE= 4 0/F P, ATM 0.500 P, PSIA 7. T, DEG K 2447. T, DEG F 3945. RHO, G/CC 6.8875- M, MOL HT 27.66 CP, CAL//G1/K1 0.621 GAMMA (S1 1.168 SON VEL,M/SEC 927.	0 1,0000 1.5000 3 14,7 22.0 1 2472.3 2485.4 0 3990.5 4014.5 5 1,3660-4 2.0402-4 0 27,713 27,740 1 0.5633 0.533 8 1,1795 1.186	29.4 44. 42494.0 2504.1 4029.5 4049.1 2.7127-4 4.0545-1 27.758 27.78 0.5134 0.48 1.1908 1.197	0 4.0000 1 58.8 9 2511.9 2 4061.8 4 5.3938-4 0 27.794 2 0.472; 5 1.2022	6.0000 88.2 2520.7 4077.6 8.0677-4 1.3 27.812 0.4520	= 1,2000 10,000 15,000 147.0 220.4 2530.1 2536.3 4094.4 4105.6 3406-3 2,0068-3 27.831 27.844 0.4306 0,4166 1,2161 1,2215 958.7 961.8	20,000 293,9 2540.1 4112.4 2.6725-3 27,851 0.4081 1.2250 963.8	30.000 440.9 2544.7 4120.7 4.0028-3 27.861 0.3979 1.2295 966.3	40.000 587.8 2547.5 4125.8 5.3323-3 27.866 0.3918 1.2323 967.8	50.000 734.8 2549.4 4129.2 6.6612-3 27.870 0.3876 1.2342 968.9

P, PSIA T, DEG K T, DEG F RHO, G/CC 8. M, MOL WT CP, CAL/(G)(K)	0.5000 7.3 2108.0 3334.7	29.3080 1.0000 14.7 2112.8 3343.4 1.6691-4 28.937 0.3692 1.2367 866.5	F/A= 0. 1.5000 22.0 2115.2 3347.6 2.5012-4 28.942 0.3644 1.2393 867.8	2.0000 29.4 2116.6 3350.2	PERCENT F 3.0000 44.1 2118.4 3353.5 4.9959-4 28.948 0.3577 1.2431 869.7	4.0000 59.8 2119.6 3355.5	6.0000 88.2 2121.0 3358.1	HI= 0.500 10.000 147.0 2122.5 3360.9 1.6626-3 28.957 0.3496 1.2479 872.1	15.000 220.4 2123.6 3362.7 2.4928-3 28.959 0.3476 1.2492 872.7	20.000 293.9 2124.2 3363.9 3.3229-3 28.960 0.3464 1.2499 873.1	30.000 440.9 2125.0 3365.3 4.9828-3 28.962 0.3449 1.2509 873.5	40.000 587.8 2125.5 3366.2 6.6424-3 28.963 0.3439 1.2514 873.8	50.000 734.8 2125.9 3366.9 8.3019-3 28.964 0.3433 1.2519 874.0
CO CO2 CO2 CO2 CO2 CO2 CO2 CO2 CO2 CO2 C	0.00900 0.00995 0.00095 0.00006 0.00000 0.00018 0.06375 0.00713 0.00000 0.75057 0.00064 0.00270 0.00270	0.00901 0.00070 0.06812 0.00004 0.00000 0.00013 0.06402 0.00722 0.00001 0.75079 0.00047 0.00232 0.09718	0.00901 0.0058 0.06825 2.00003 0.00001 0.00415 0.00726 0.00001 0.75350 0.00039 0.00212 0.09719	0.00901 0.00051 0.06833 0.60002 0.00000 0.00010 0.06424 0.00728 0.00001 0.75096 0.00034 0.00199 0.09720	0.00901 0.00042 0.06842 0.00002 0.00008 0.00008 0.00436 0.00732 0.00001 0.75104 0.00028 0.00181 0.09722	0.00901 0.00037 7.06848 0.60001 0.00001 0.00007 0.06443 0.00001 0.75109 0.00025 0.00170 0.09723	0.00901 0.00030 0.06855 0.00001 0.00001 0.00006 0.06453 0.00737 0.00020 0.75116 0.00020 0.00154	0.00901 0.00024 0.06863 0.00001 0.00005 0.06464 0.00739 0.00002 0.75122 0.00016 0.00137	0.00901 0.00020 0.06867 0.00001 0.00001 0.0004 0.06471 0.00003 0.75127 0.00013 0.00124 0.09727	0.00901 0.00017 0.06870 0.00000 0.00001 0.00003 0.06476 0.00742 0.00003 0.75130 0.00011 0.00116 0.09728	0.00901 0.00014 0.06874 0.00000 0.00001 0.00003 0.06483 0.00744 0.00004 0.75133 0.00009 0.00105 0.09729	0.00901 0.00012 0.06876 0.00000 0.00001 0.00002 0.06487 0.00745 0.00004 0.75135 0.00008 0.0098	0.00902 0.00011 0.06877 0.00000 0.00001 0.00002 0.06490 0.00746 0.00005 0.75137 0.00007 0.00093 0.09730
CASE= 6 P. ATM P. PSIA	0.5000	24.4233 1.0000 14.7	F/A= 0. 1.5000 22.0	04094 2.0000 29.4	PERCENT F 3.0000 44.1	UEL= 3. 4.0000 58.8	9334 P 6.0000 88.2	HI= 0.600 10.000 147.0	15.000 220.4	20.000 293.9	30.000 440.9	40,000 587,8	50.000 734.8
T, DEG K T, DEG F RHO, G/CC 7. M, MOL WT CP, CAL/(G)(K)	7.3 2249.3 3589.1 .8171-5 28.856 0.4459 1.2033 883.1	2260.6 3609.3	2266.2 3619.5 2.3306-4 28.893 0.4123 1.2156 890,4	2269.8 3625.9 3.1034-4 28.900 0.4053 1.2185 892.0	2274.4 3634.2	2277.3 3639.4	2280.9 3645.9 9.2724-4 28.924 0.3842 1.2278 897.2	2284.8 3653.0 1.5432-3 28.933 0.3770 1.2313 899.1	2287.5 3657.7 2.3126~3 28.938 0.3721 1.2337 900.5	2289.1 3660.8 3.0815-3 28.942 0.3691 1.2352 901.3	2291.2 3664.5 4.6188-3 28.946 0.3654 1.2372 902.3	2292.5 3666.8	2293.4 3668.5 7.6919-3 28.951 0.3615 1.2392 903.5

CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 I, DEG K 2572.5 I, DEG F 4170.8 RHO, G/CC 6.5303-5 M, MOL HT 27.569 CP, CAL/(GJIK) 0.8360 GAMMA (SI 1.1452 SON VEL,M/SEC 942.6	12.7426 F/A= 0:0 1.0000 1.5000 14.7 22.0 2611.8 2634.0 4241.6 4281.4 1.2303-4 1.9224-4 27.653 27.699 0.7695 0.7331 1.1516 1.1555 951.0 955.8	2.0000 3.0000 29.4 44.1 2649.2 2670.0 4308.9 4346.3	4.0000 6.0000 58.8 88.2 2684.2 2703.4 4371.9 4406.4 5.0495-4 7.5313-4 27.805 27.845 0.6518 0.6210 1.1657 1.1704	PHI = 1.1500 10.000 15.000 147.0 220.4 2726.1 2742.7 4447.2 4477.2 1.2469-3 1.8612-3 27.892 27.926 0.5845 0.5573 1.1765 1.1815 977.8 982.3	293.9 2753.8 2 4497.2 4 2.4737-3 3.6 27.949 2 0.5391 0 1.1853 1	30.000 40.000 50.000 440.9 587.8 734.8 2768.3 2777.8 2784.7 1523.3 4540.4 4552.8 9550-3 4.9132-3 6.1294-3 27.979 27.998 28.012 0.5150 0.4991 0.4874 1.1906 1.1945 1.1975 989.7 992.7 994.9
MOLE FRACTIONS AR CO 0.06583 CO2 0.07842 H 0.00593 H2 0.01515 H20 0.11402 N0 0.00494 N2 0.68673 O 0.00257 OH 0.01026 O2 0.00792	0.68887 0.69009 0.00199 0.00169 0.00934 0.00378	0.00828	0.05944 0.05822 0.08604 0.08747 0.00299 0.00258 0.01264 0.01221 0.12063 0.12176 0.00434 0.00413 0.69291 0.69402 0.00110 0.00090 0.00736 0.00677	0.00832 0.00833 0.05674 0.05563 0.08920 0.09049 0.0013 0.01182 0.01170 0.01133 0.12310 0.12408 0.00383 0.00357 0.69534 0.69633 0.00069 0.00055 0.00602 0.00544	0.05488 0. 0.09136 0. 0.00162 0. 0.01109 0. 0.12474 0. 0.00338 0. 0.69700 0. 0.00046 0. 0.00504 0.	.00835 0.00836 0.00836 .05389 0.05324 0.05277 .09250 0.09325 0.09380 .00138 0.00122 0.00111 .01078 0.01058 0.01043 .12559 0.12616 0.12657 .00309 0.00289 0.00273 .69788 0.69847 0.65890 .00036 0.00030 0.00025 .00449 0.00411 0.00383 .00168 0.00143 0.00125
CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2570.9 T, DEG F 4167.8 RHO, G/CC 6.4959-5 M, MOL HT 27.407 CP, CAL/(GI(K) 0.7994 GAMMA (SI 1.1493 SON VEL,M/SEC 946.8	12.2117 F/A= 0.0 1.5000 14.7 22.0 2608.5 2629.4 4235.6 4273.2 1.2841-4 1.9139-4 27.486 27.530 0.7295 0.6913 1.1567 1.1613 955.3 960.3	2.0000 3.0000 29.4 44.1 2643.6 2662.8 4298.9 4333.4	4.0000 6.0000 58.8 88.2 2675.7 2692.9 4356.6 4387.5 5.0329-4 7.5108-4 27.626 27.661 0.6072 0.5760 1.1737 1.1792	PHI = 1,2000 10,000 15,000 147.0 220.4 2712.7 2726.8 4423.1 4448.6 1.2445-3 1.8590-3 27,702 27,731 0,5399 0,5139 1,1865 1,1924 982.8 987.3	293.9 2736.0 2 4465.1 4 2.4720-3 3.6 27.749 2 0.4969 0 1.1966 1	30.000 40.000 50.000 440.9 587.8 734.8 2747.7 2755.2 2760.5 4486.2 4499.7 4509.3 9953-3 4.9164-3 6.1360-3 27.773 27.788 27.799 0.4752 0.4613 0.4514 1.2025 1.2066 1.2097 994.6 997.3 999.4

P, ATM 0.! P, PSIA T, DEG K 20 T, DEG F 32: RHO, G/CC 8.06 M, MOL WT 26 CP, CAL/(GI(K) 0. GAMMA (S) 1.	5000 1.0000 1.500 7.3 14.7 22.1 34.7 2036.1 2036.1 02.8 3205.3 3206.	29.4 44.1 3 2037.1 2037.6 5 3207.2 3208.0 4 3.2209-4 4.8305-4 0 26.921 26.922 0 0.3591 0.3579 9 1.2606 1.2613	4.0000 6.0000 58.8 88.2 2037.9 2038.2 3208.5 3209.0 6.4399-4 9.6586-4 26.922 26.923 0.3572 0.3563 1.2617 1.2623	PHI= 1.4000 10.000 15.000 147.0 220.4 2038.5 2038.7 3209.6 J210.0 1.6096-3 24141-3 26.924 26.924 0.3555 0.3550 1.2628 1.2632 891.6 891.8	20.000 30.000 293.9 400.9 2038.9 2039.0 3210.2 3210.5 3.2187-3 4.8277-3 26.924 26.925 0.3547 0.3543 1.2634 1.2636 891.9 892.0	40.000 50.000 587.8 734.8 2039.1 2039.2 3210.7 3210.8 6.4367-3 8.0457-3 26.925 26.925 0.3541 0.3539 1.2637 1.2638 892.0 892.1
CO 0.11 CO2 0.01 H 0.0 H2 0.0 H20 0.11 NH3 0.01 NO 0.00	0.00791 0.00791 0.10234 0.10234 6642 0.06640 0.0663 0057 0.00041 2.0003 3970 0.03972 0.0397 2052 0.12063 0.1206 0000 0.00000 0.0000 0003 0.00002 0.0000 0003 0.66243 0.6624 0019 0.00014 0.0007	5 0.10737 0.10238 9 0.06639 0.06638 1 0.06029 0.06024 3 0.03973 0.03974 3 0.12071 0.12074 0 0.00000 0.00000 2 0.00001 0.00001 7 0.66249 0.66252	0.10239 0.10239 0.06638 0.06637 0.00021 0.00017 0.03974 0.03975 0.12076 0.12079 0.00000 0.00000 0.00001 0.00001 0.66253 0.66255	0.00791 0.00791 0.10240 0.10241 0.06637 0.06636 0.09013 0.00011 0.03975 0.03976 0.12081 0.12083 0.00000 0.00000 0.00001 0.00001 0.66257 0.66258 0.00004 0.00004	0.00791 0.00791 0.10241 0.10242 0.06636 0.06636 0.03976 0.33976 0.12084 0.12085 0.00000 0.00000 0.00000 0.00000 0.66259 0.66260 0.00003 0.00003	0.00791 0.00791 0.10242 0.10242 0.06636 0.06636 0.0007 0.00006 0.03976 0.12086 0.00001 0.00001 0.00000 0.00001 0.00000 0.066261 0.00002 0.00002
P, ATM P, PSIA T, DEG K T, DEG F PRHO, G/CC B, 411 M, MOL HT CP, CAL/(G) IK1 OGMMA (S) 1.	5000 1.0000 1.500 7.3 14.7 22. 84.3 1884.9 1885. 32.1 2933.0 2933.	29.4 44.1 1 1885.2 1885.4 1 2933.7 2934.0 4 3.3660-4 5.0486-4 5 26.035 26.036 6 0.3589 0.3584 6 1.2708 1.2712	4.0000 6.0000 58.8 88.2 1885.5 1885.6 2934.2 2934.4 6.7312-4 1.0096-3 26.036 26.036 0.3581 0.3578 1.2713 1.2716	PHI = 1.6000 10.000 15.000 147.0 220.4 1885.7 1885.8 2934.6 2934.7 1.6826-3 2.5239-3 26.036 26.036 0.3575 0.3573 1.2718 1.2719 875.1 875.2	20.000 30.000 293.9 440.9 1885.8 1885.9 2934.8 2934.9 3.3651-3 5.0475-3 26.037 26.037 0.3572 0.3570 1.2720 1.2721 875.2 875.3	40.000 50.000 587.8 734.8 1885.9 1886.0 2935.0 2935.0 6.7299-3 8.4123-3 26.037 26.037 0.3569 0.3569 1.2722 1.2722 875.3 875.3
CO 0.1 CO2 0.0 H 0.0 H2 0.0 H20 0.1 NH3 0.0 N2 0.6	0.755 0.00755 0.0075 3434 0.13436 0.1343 4984 0.04982 0.0498 0026 0.00019 0.0001 925 0.06927 0.692 0595 0.10598 0.1059 0000 0.00000 0.0000 3278 0.63280 0.6328 0003 0.00002 0.0000	7 0.13437 0.13438 0.04981 0.04981 5 0.00013 0.00011 8 0.06929 0.06929 9 0.10600 0.10601 0 0.00000 0.00000 2 0.63282 0.63283	0.13439 0.13439 0.04980 0.04980 0.00009 0.00008 0.06929 0.06930 0.10602 0.10602 0.00000 0.00000	0.00756 0.00756 0.13439 0.13440 0.04980 0.04980 0.00006 0.00005 0.06930 0.06930 0.10603 0.10603 0.00000 0.00001 0.63285 0.63285 0.00001 0.00001	0.00756 0.00756 0.13440 0.13440 0.04980 0.004980 0.00004 0.00003 0.06930 0.06930 0.10604 0.10604 0.00001 0.00001 0.63286 0.63286 0.00001 0.00000	0.13440 0.13440 0.04980 0.04980 0.00003 0.00003

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T, DEG F RHO, G/CC 8. M, MOL WT	0.5000 7.3 2082.2 3288.3	20.9343 1.0000 14.7 2087.4 3297.6 1.6395-4 28.938 0.3775 1.2312 859.3	F/A= 0 1.5000 22.0 2089.9 3302.1 2.5316-4 28.943 0.3719 1.2341 860.7	.04777 2,0000 29.4 2091.4 3304.9 3,3734-4 28,946 0,3685 1,2359 861.7	PERCENT F 3.0000 44.1 2093.4 3308.4 5.0560-4 5.950 0.3642 1.2383 862.8	4.0000 58.8 2094.6 3310.6	6.0000 88.2 2096.1 3313.4	PHI= 0.700 10.000 147.0 2097.8 3316.3 1.6824-3 28.960 0.3549 1.2436 865.4	15.000 220.4 2098.8 3318.2	20.000 293.9 2099.5 3319.4 3.3623-3 28.963 0.3513 1.2458 866.5	30.000 440.9 2100.4 3321.0 5.0418-3 28.965 0.3496 1.2468 867.0	40.000 587.8 2100.9 3321.9 6.7210-3 28.966 0.3485 1.2475 867.3	50.000 734.8 2101.3 3322.6 3.3999-3 28.967 0.3478 1.2479 867.6
CO C	0.00889 0.00139 0.00395 0.00006 0.000027 0.08869 0.00511 0.00000 0.74177 0.00041 0.00249 0.05737	0.00889 0.00103 0.09395 0.00004 0.00000 0.00020 0.08898 0.00517 0.00000 0.74202 0.00030 0.00214 0.05727	0.00889 0.00886 0.09413 0.00003 0.00000 0.00017 0.08913 0.00520 0.00000 0.74214 0.00025 0.00196 0.05723	0.00889 0.00075 0.09425 0.00003 0.000015 0.08922 0.00522 0.00001 0.74221 0.00022 0.00184 0.05721	0.00889 0.00063 0.09439 0.00002 0.000012 0.008934 0.00525 0.00001 0.74230 0.00018 0.00167 0.05719	0.00889 0.00055 7.09448 0.60002 0.00000 0.00011 0.08942 0.00526 0.000016 0.74236 0.00016 0.00157 0.05717	0.00890 0.00045 0.09458 0.00001 0.00000 0.00009 0.08952 0.00528 0.00001 0.74243 0.00013 0.00143	0.00890 0.00036 0.09469 0.00001 0.00000 0.00007 0.08963 0.00530 0.00001 0.74251 0.00010 0.00127 0.05715	0.00890 0.00029 0.09476 0.00001 0.00001 0.00006 0.08971 0.00532 0.00001 0.74256 0.00008 0.00115	0.00890 0.00026 0.09480 0.00000 0.00001 0.00005 0.08976 0.00533 0.00002 0.74259 0.00007 0.00107 0.05714	0.00890 0.00021 0.09486 0.00000 0.00001 0.00094 0.00993 0.00534 0.00002 0.74263 0.00006 0.00097 0.05714	0.00890 0.00018 0.09489 0.00000 0.00001 0.00004 0.08987 0.00534 0.00002 0.74265 0.00005 0.00091	0.00890 0.00016 0.09491 0.00000 0.00001 0.00003 0.08990 0.00535 0.00003 0.74267 0.00005 0.00005
CASE= 3 P, ATM P, PSIA T, DEG K	0/F= 0.5000 7.3 2215.9	18.3175 1.0000 14.7	F/A= 0. 1.5000 22.0	2.0000 29.4	PERCENT F 3.0000 44.1	UEL= 5. 4.0000 58.8	1767 P 6.0000 88.2	HI= 0.800 10.000 147.6	15.000 220.4	20.000 293.9	30.000 440.9	40.000 587.8	50.000 734.8
T, DEG F RHO, G/CC 7. M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	3529.0	2228.3 3551.3 1.5790-4 28.873 0.4417 1.2037 878.9	2234.6 3562.6 2.3630-4 28.886 0.4288 1.2083 881.6	2238.6 3569.8 3,1460-4 28.895 0.4205 1,2115 883.4	2243.7 3579.0 4.7100-4 28.906 0.4100 1.2156 885.7	2247.0 3584.9 6.2724-4 28.913 0.4034 1.2184 887.3	2251.1 3592.3	2255.6 3600.3 1.5631-3 28.931 0.3862 1.2260 891.5	2258.6 3605.8 2.3421-3 28.938 0.3802 1.2288 893.0	2260.5 3609.2 3.1206-3 28.942 0.3765 1.2306 894.0	2262.8 3613.4	2264.3 3616.0 6.2325-3 28.950 0.3691 1.2344 895.9	2265.3 3617.9

CASE= 4 0/F P, ATM 0.5000 P, PS1A 7. T, DEG K 2350. T, DEG F 3770. RHO, G/CC 6.9595- M, MOL HT 26.841 CP, CAL/(G1(K) 0.4490 GAMMA (S) 1.217. SON VEL,M/SEC 941.	3 14.7 22.0 2360.8 2365.9 2 2360.8 3769.0 3 3789.8 3799.0 3 5 1.3367-4 2.0764-4 2.7 0 26.863 26.874 2 0 0.4234 0.4116 0 4 1.2273 1.2323 1	PERCENT FUEL = 8 .0000 3.0000 4.0000 .29,4 44,1 58,8 .369,1 2372,9 2375,2 .804,6 3811,5 3815,6 .655-4 4.1428-4 5.5193-4 .6,680 26.888 26,893 .4045 0.3960 0.3909 .4045 0.3960 0.3909 .4045 953,6 955.0	.7206 PHI= 1.4000 6.0000 10.000 15.000 88.2 147.0 220.4 2378.0 2380.9 2382.7 3820.7 3825.9 3829.2 8.2710-4 1.3771-3 20644-3 26.899 26.905 26.909 0.3848 0.3787 0.3748 1.2450 1.2482 1.2503 956.6 958.3 959.4	20.000 30.000 40.000 50.000 293.9 440.9 587.8 734.8 2383.8 2385.1 2385.9 2386.5 3831.2 3833.6 3835.0 3836.0 2.7515-3 4.1254-3 5.4990-3 6.8725-3 26.911 26.914 26.915 26.916 0.3724 0.3697 0.3680 0.3669 1.2516 1.2531 1.2541 1.2547 960.1 960.9 961.4 961.7
MOLE FRACTIONS AR CO 0.1058 CO2 0.0623 H 0.0331 H2 0.3361 H20 0.1213 NO 0.0004 N2 0.6602 0 0.0001 OH 0.0019 O2 0.0001	3 0.10590 0.10592 0. 7 0.06249 0.06254 0. 3 0.00249 0.03611 0. 3 0.03611 0.03611 0. 7 0.12219 0.12257 0.00037 0. 9 0.66090 0.66119 0. 2 0.00007 0.00005 0. 7 0.00150 0.00027 0.	00790 0.00790 0.00790 10F93 0.10594 0.10595 06257 0.06261 0.06262 00183 0.00152 0.00133 03611 0.03611 0.03611 12281 0.12310 0.12328 00028 0.00023 0.00021 66136 0.66158 0.66171 00004 0.00003 0.00002 00112 0.00094 0.00003	0.00790 0.00790 0.00791 0.10597 0.10598 0.10599 0.06265 0.06267 0.00626 0.00110 0.00087 0.00071 0.03612 0.03612 0.03612 0.12349 0.12371 0.12386 0.00017 0.00014 0.00011 0.66187 0.66204 0.66215 0.00001 0.00001 0.00001 0.00069 0.00054 0.00045 0.00002 0.00001 0.00001	0.00791 0.00791 0.00791 0.00791 0.10600 0.10601 0.10601 0.10602 0.06269 0.06270 0.06270 0.06271 0.00062 0.00051 0.00044 0.00040 0.03613 0.03613 0.03613 0.36613 0.12394 0.12404 0.12411 0.12415 0.00010 0.00008 0.00007 0.00006 0.66221 0.66229 0.66233 0.66236 0.00009 0.00002 0.00028 0.00025 0.00001 0.00002 0.00008 0.00002 0.00001 0.00000 0.00000 0.00000
CASE= 4 0/F P, ATM 0.500 P, PSIA 7. T, DEG K 2212. T, DEG F 3522. RHO, G/CC 7.1613- M, MOL HT 26.00 CP, CAL/IGIIKI 0.399 GAMMA (5) 1.246 SON VEL,M/SEC 939.	0 1,0000 1,5000 2 14,7 22.0 3 2217.1 2219.2 2 5 3531.0 3534.9 3 5 1,4297-4 2,1429-4 2,8 1 26,011 26,015 2 0,3888 0,3839 0,3839 0 5 1,5521 1,2547 1	119 PERCENT FUEL= 9 1.0000 3.0000 4.0000 29.4 44.1 58.8 1220.6 2222.2 223.1 1537.3 3540.2 3541.9 1558-4 4.2811-4 5.7062-4 16.018 26.021 26.023 1.3810 0.3775 0.3754 1.2563 1.2582 1.2594 1.44.2 945.2 945.8	.8437 PHI= 1.6000 6.0000 10.000 15.000 88.2 147.0 220.4 2224.3 2225.5 2226.2 3544.0 3546.1 3547.5 8.5556-4 1.4253-3 2.1374-3 26.026 26.028 26.030 0.3728 0.3703 0.3686 1.2609 1.2624 1.2533 946.6 947.3 947.8	20.000 30.000 40.000 50.000 293.9 440.9 587.8 734.8 2226.7 2227.2 2227.5 2227.7 3548.3 3549.2 3549.3 3550.2 2.8494-3 4.2733-3 5.6970-3 7.1207-3 26.031 26.032 26.033 26.033 0.3677 0.3665 0.3658 0.3654 1.2639 1.2646 1.2650 1.2653 948.1 948.5 948.7 948.8
MOLE FRACTIONS AR CO 0.1387: CO2 0.0451 H 0.0021 H2 0.6339 H20 0.1098 NH3 0.0000 NO 0.0000 NO 0.6319 O 0.0000 OH 0.0005 O2 0.0005	8 0.13891 0.13897 0. 5 0.04510 0.04507 0. 5 0.00156 0.00129 0. 7 0.06410 0.06416 0. 0 0.00000 0.00000 0. 8 0.00000 0.00000 0. 4 0.63220 0.63231 0. 1 0.00001 0.00000 0.	00755 0.00755 0.00755 13901 0.13906 0.13908 04505 0.04503 0.04502 00113 0.00093 0.00081 06420 0.06425 0.06428 11034 0.11044 0.11050 00000 0.00000 0.00000 00004 0.00004 0.00003 63239 0.63247 0.63252 00000 0.00000 0.00000 00028 0.00024 0.00021 00000 0.00000	0.00755 0.00755 0.00755 0.13911 0.13915 0.13917 0.04501 0.04499 0.04498 0.0066 0.00052 0.00042 0.06431 0.06434 0.06436 0.11057 0.11064 0.11069 0.00000 0.00000 0.00000 0.00003 0.00002 0.00002 0.63259 0.63265 0.63269 0.00000 0.00000 0.00000 0.00017 0.00013 0.00011 0.00000 0.00000 0.00000	0.00755 0.00755 0.00755 0.00755 0.13918 0.13919 0.13920 0.13921 0.04498 0.04497 0.04497 0.00497 0.00037 0.00030 0.00026 0.00023 0.06438 0.06439 0.06440 0.06440 0.11072 0.11075 0.11077 0.11078 0.00000 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.63271 0.63274 0.63276 0.63277 0.00000 0.00000 0.00000 0.00000 0.00009 0.00008 0.00007 0.00000 0.00009 0.00008 0.00007 0.00006

CASE= 6 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGIIK; GAMMA (S) SON VEL,M/SEC	0.5000 7.3 2360.2 3788.6	20.9343 1.0000 14.7 2380.1 3824.6 1.4733-4 28.775 0.5069 1.1860 903.1	F/A= 0. 1.5000 22.0 2390.6 3843.4 2.2020-4 28.798 0.4878 1.1909 906.6	2.0000 29.4 2397.5 3855.9	PERCENT F 3.0000 44.1 2406.5 3872.0 4.3803-4 28.833 0.4592 1.1991 912.2	UEL= 4, 4,0000 58.8 2412.4 3882.6 5.8288-4 28.845 0.4488 1,2023 914.3	6.0000 88.2 2419.9 3896.1	HI= 0.700 10.000 147.0 2428.3 3911.2 1.4494-3 28.880 0.4209 1.2119 920.4	15.000 220.4 2434.1 3921.6 2.1699-3 28.893 0.4110 1.2156 922.8	20,000 293,9 2437,8 3928,3 28,901 0,4046 1,2181 924,3	30.000 440.9 2442.4 3936.6 4.3276-3 28.911 0.3967 1.2214 926.2	40.000 587,8 2445.4 3941.9 5.7645-3 28.917 0.3918 1.2235 927,5	50.000 734.8 2447.5 3945.7 7.2006-3 28.922 0.3883 1.2250 928.4
MOLE FRACTIONS AR CO CO2 H H02 H2 H20 N0 N02 N2 0 OH	0.00883 0.00844 0.08586 0.00070 0.00000 0.00144 0.08418 0.00937 0.00000 0.73460 0.00234 0.00730 0.05693	0.00884 0.00689 0.08755 0.00049 0.00001 0.00116 0.08569 0.00000 0.73557 0.00184 0.00659 0.05631	0.00885 0.00606 0.08846 0.00039 0.00001 0.00101 0.09554 0.00966 0.00001 0.7357 0.00158 0.00618	0.00885 0.00%51 0.08%66 0.00033 0.00001 0.00091 0.008586 0.00001 0.73640 0.00142 0.00590 0.05597	0.00886 0.00479 0.08984 0.00026 0.00078 0.08628 0.01012 0.00001 0.73683 0.00121 0.00550	0.00886 0.00432 0.09035 0.60022 0.00001 0.00070 0.08655 0.01022 0.00001 0.73711 0.00108 0.00522 0.05533	0.00887 0.00371 0.09101 0.00017 0.00001 0.00060 0.08692 0.01035 0.00001 0.73747 0.00092 0.00484 0.05511	0.00887 0.00305 0.09174 0.00013 0.00001 0.00049 0.00734 0.01049 0.00001 0.73787 0.00074 0.00439 0.05487	0.00888 0.00259 0.09224 0.00010 0.00001 0.008764 0.01059 0.00002 0.73814 0.00062 0.00405 0.05471	0.00888 0.00230 0.09256 0.00008 0.00001 0.00037 0.08784 0.01065 0.00052 0.73832 0.00055 0.00382 0.05461	0.00888 0.00194 0.09295 0.00006 0.00002 0.00031 0.08809 0.01073 0.00046 0.00350 0.05450	0.00888 0.00171 0.09320 0.00005 0.00002 0.00027 0.08826 0.01078 0.00003 0.73867 0.00040 0.00329 0.05443	0.00888 0.00155 0.09337 0.00004 0.00002 0.00025 0.08838 0.01082 0.00003 0.73877 0.00036 0.00314 0.05438
CASE= 6 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC	0/F= 0.5000 7.3 2441.9 3935.8	18.3175 1.0000 14.7 2470.3 3986.9	F/A= 0. 1.5000 22.0 2485.9 4014.9	2.0000 29.4 2496.5	PERCENT F 3.0000 44.1 2510.6	4.0000 58.8 2520.1	.1767 P 6.0000 88.2 2532.7	HI= 0.800 10.000 147.0 2547.2	15.000 220.4 2557.7	20.000 293.9 2564.6	30.000 440.9 2573.5	40.000 587.8 2579.3	50.000 734.8 2583.4
M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC				4033.9 2.7992-4 28.671 0.5685 1.1736 921.8	4059.4 4.1796-4 28.702 0.5458 1.1781 925.6	4076.5 5.5559-4 28.723 0.5306 1.1813 928.3	4099.2 8.3004-4 28.751 0.5106 1.1858 932.0	4125.3 1.3770~3 28.783 0.4877 1.1915 936.3	4144.2 2.0587-3 28.806 0.4712 1.1959 939.6	4156.6	4172 6	4183.0 5.4531-3 28.853 0.4377 1,2060 946.8	4190.5

CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2519.1 T, DEG F 4074.8 RHO, G/CC 6.4569-5 M, MOL NT 26.694 CP, CAL/(GI(K) 0.5944 GAMMA (S) 1.1808 SON VEL,M/SEC 962.6	10.4671 F/A= 0.09554 1.0000 1.5000 2.00 14.7 22.0 29 2544.1 2556.8 2565 4119.7 4142.6 4157 1.2812-4 1.9140-4 2.5455 26.746 26.772 26.77 0.5381 0.5102 0.49 1.1927 1.1996 1.20 971.2 976.0 979	4 44.1 58.8 0 2575.4 2581.9 3 4176.0 4187.8 4 3.8059-4 5.0642-4 7 19 26.810 26.823 19 0.4708 0.4572 4 1.2109 1.2153	6.0000 10.000 15.000 88.2 147.0 220.4 2590.1 2598.8 2604.5 4202.5 4218.1 4228.4	20.000 30.000 40.000 50.000 293.9 440.9 587.8 734.8 2608.0 2612.3 2614.9 2616.7 4234.8 4242.5 4247.2 4250.4 2.5117-3 3.7626-3 5.0128-3 6.2625-3 26.876 26.885 26.890 26.894 0.4052 0.3970 0.3921 0.3888 1.2352 1.2389 1.2412 1.2428 998.3 1000.4 1001.8 1002.7	
MOLE FRACTIONS AR CO 0.00784 CO2 0.05861 H 0.00722 H2 0.03535 H20 0.11772 N0 0.00152 N2 0.55617 O 0.00069 OH 0.00521	0.00786 0.00787 0.007 0.10847 0.10835 0.109 0.05918 0.05947 0.059 0.03507 0.00487 0.004 0.03509 0.03496 0.034 0.11952 0.12045 0.121 0.00129 0.00116 0.001 0.65755 0.65826 0.658 0.00045 0.00034 0.000 0.00430 0.00379 0.0003 0.00062 0.00048 0.000	0.10817 0.10811 0.05989 0.06033 0.00371 0.060330 0.00371 0.06330 0.07479 0.03474 0.012183 0.12232 0.00094 0.00085 0.00094 0.00085 0.00020 0.00016 0.00020 0.00016	0.00789 0.00789 0.00789 0.10804 0.10797 0.10792 0.06021 0.06039 0.06050 0.00279 0.03461 0.03457 0.12293 0.12359 0.12402 0.00073 0.00060 0.00051 0.66014 0.66064 0.66097 0.00012 0.0008 0.0005 0.00231 0.0018 0.0015 0.00231 0.0018 0.00059 0.00231 0.0018 0.00058	0.00790 0.00790 0.00790 0.00790 0.10790 0.10787 0.10785 0.10784 0.06057 0.06066 0.06071 0.06074 0.00164 0.00136 0.00119 0.00107 0.03455 0.03453 0.03452 0.03451 0.12429 0.12462 0.12482 0.12496 0.00046 0.00038 0.00034 0.00031 0.66118 0.66143 0.66158 0.66168 0.00004 0.00003 0.00002 0.00002 0.00141 0.00118 0.0014 0.00094 0.00006 0.00004 0.00003 0.00003	
CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2411.1 T, DEG F 3880.2 RHO, G/CC 6.5518-5 M, MOL WI 25.925 CP, CAL/(G)IK) 0.4725 GAMMA (S) 1.2175 SON VEL,M/SEC 970.3	9.1588 F/A= 0.10919 1.0000 1.5000 2.00 14.7 22.0 29 2424.6 2431.2 2435 3904.6 3916.4 3923 1.3044-4 1.9524-4 2.5997 25.953 25.966 25.9 0.4440 0.4206 0.42 1.2276 1.2328 1.23 976.5 979.6 981	.4 44.1 58.8 2 2440.2 2443.3 7 3932.7 3938.3 4 3.8931-4 5.1855-4 7 5 25.985 25.991 23 0.4123 0.4062 22 1.2405 1.2433	1437 PHI= 1.6000 6.0000 10.000 15.000 88.2 147.0 220.4 2447.1 2451.0 2453.6 3945.1 3952.1 3956.7 7.686-4 1.2931-3 1,9380-3 25.999 26.007 26.012 0.3989 0.3913 0.3865 1.2468 1.2505 1.2529 987.8 989.9 991.3	20.000 30.000 40.000 50.000 293.9 440.9 587.8 734.8 2435.1 2456.9 2458.1 2458.8 3959.5 3962.8 3964.8 396.2 2.5827-3 3.8718-3 5.1605-3 6.4490-3 26.016 26.019 26.022 26.023 0.3836 0.3801 0.3780 0.3765 1.2544 1.2563 1.2574 1.2582 992.1 993.1 993.8 994.2	
MOLE FRACTIONS AR C0 0.14053 C02 0.04288 H 0.00583 H2 0.06110 H20 0.10961 NH3 0.00000 N0 0.00039 N2 0.62994 O 0.00199	0.14077 0.14088 0.140 0.04283 0.04281 0.042 0.00440 0.00371 0.003 0.06135 0.06148 0.061 0.10048 0.11091 0.111 0.00000 0.00000 0.000 0.00030 0.00026 0.000 0.63067 0.63102 0.631	0.14105 0.14110 0.04278 0.04277 0.00274 0.00241 0.06166 0.06172 0.00000 0.00000 0.00000 0.00000 0.00000 0.00017 0.4 0.63150 0.63167	0.00754 0.00755 0.00755 0.14117 0.14125 0.14129 0.04276 0.04274 0.04273 0.00200 0.06186 0.06130 0.06180 0.06189 0.06194 0.11195 0.11221 0.11238 0.00000 0.00000 0.00000 0.00014 0.00012 0.00010 0.63187 0.63209 0.63222 0.00002 0.00001 0.00001	0.00755 0.00755 0.00755 0.00755 0.14132 0.14136 0.14138 0.14139 0.04273 0.04272 0.04271 0.04271 0.00114 0.00094 0.00082 0.00073 0.11248 0.11260 0.11267 0.11272 0.00000 0.00000 0.00001 0.00001 0.00008 0.00007 0.00006 0.00005 0.63231 0.63241 0.63247 0.63251 0.00000 0.00000 0.00000 0.00000	

P, PSIA T, DEG K 1 T, DEG F 2 RHO, G/CC 8.8 M, MOL WT 2 CP, CAL/(GI(K) 0 GAMMA (S) 1	0/F = 8.1411 0.5000 1.0000 7.3 14.7 742.2 1742.4 9276.3 2676.6 9218-5 1.7642-4 95.223 25.224 0.3616 0.3610 1.2791 1.2796 857.1 857.3	F/A= 0.12283 1.5000 2.0000 22.0 29.4 1742.5 1742.5 2676.7 2676.6 2.6462-4 3.5282-4 25.224 25.224 0.3607 0.3606 1.2797 1.2799 857.3 857.4	3.0000 4.0000 44.1 58.8 1742.6 1742.6 2676.9 2677.0 5.2921-4 7.0560-4 25.224 25.224 0.3604 0.3603 1.2800 1.2801	.9396 PHI = 1.800 6.0000 10.000 88.2 147.0 1742.6 1742.7 2677.1 2677.2 1.0584-3 17639-3 25.224 25.224 0.3602 0.3600 1.2802 1.2802 857.5 857.6	15.000 20.000 220.4 293.9 1742.7 1742.8 2677.2 2677.2 2.6459-3 3.5278-3 25.225 25.225 0.3600 0.3599 1.2803 1.2803 857.6 857.6	440.9 587.8 1742.8 1742.8 2 2677.3 2677.4 5 5.2917-3 7.0555-3 2 25.225 25.225 0 0.3599 0.3599 1 1.2804 1.2804	734.8 1742.8 2677.4 8.8194-3 25.225 0.3599 1.2804
CO O. CO2 O. H O. H2 O. H2O O. NH3 O.	.00723 0.00723 15924 0.15925 0.3904 0.03903 .00010 0.00007 10067 0.10067 .08809 0.08810 0.0000 0.00000 .60564 0.60564	0.00723 0.00723 0.15925 0.15926 0.03903 0.3903 0.0006 0.0005 0.10068 0.19068 0.09810 0.08810 0.09000 0.00000 0.60565 C.60565	0.15926 0.15926 0.03903 0.03903 0.00004 0.60003 0.10068 0.10068 0.08811 0.08811 0.00000 0.00000	0.00723 0.00723 0.15926 0.15926 0.03902 0.03902 0.00003 0.00002 0.10068 0.10068 0.08811 0.08811 0.00001 0.00001 0.60566 0.60566	0.00723 0.00723 0.15926 0.15926 0.03903 0.03903 0.00002 0.00002 0.10068 0.10067 0.08811 0.08811 0.00001 0.00002 0.60566 0.60566	0.15926 0.15926 0.03903 0.03903 0.00001 0.00001 0.10066 0.10065 0.08811 0.08811	0.15926 0.03903 0.00001 0.10064 0.08811 0.00004
P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) OGAMMA (S) 1	0/F= 7.3270 0.5000 1.0000 7.3 14,7 1607.5 1607.6 2433.9 2434.0 2785-5 1.8556-4 24.478 24.479 0.3629 0.3627 1.2883 1.2885 838.7 838.8	F / A = 0.13648 1.5000 2.0000 22.0 29.4 1607.6 1607.6 2434.0 2434.1 27834-4 3.7112-4 24.479 24.479 0.3626 0.3626 1.2885 1.2886 838.8 838.8	3.0000 4.0000 44.1 58.8 1607.7 1607.7 2434.1 2434.1 5.5668-4 7.4223-4 24.479 24.479 0.3625 0.3625 1.2886 1.2887	.0091 PHI = 2.00 6.0000 10.000 88.2 147.0 1607.7 1607.7 2434.1 2434.2 1.1133~3 1.8555~3 24.479 24.479 0.3625 0.3624 1.2887 1.2887 838.9 838.9	15.000 20.000 220.4 293.9 1607.7 1607.8 2434.2 2434.3	440.9 587.8 1607.8 1607.8 2434.4 2434.5 5.5665-3 7.4219-3 24.480 24.481 0.3626 0.3628 1.2887 1.2887	734.8 1608.0 2434.6 9.2773-3 24.482 0.3630 1.2886
CH4 0. CO 0. CO2 0. H 0. H2 0. H20 0. WH3 0.	.00693 0.00693 .00000 0.00000 .17984 0.17984 .03127 0.03137 .00003 0.00002 .13170 0.13171 .06943 0.06943 .00000 0.00000 .58070 0.58070	0.00693 0.00693 0.00000 0.00000 0.17985 0.17985 0.03137 0.03137 0.00002 0.00002 0.13171 0.13171 0.06943 0.06913 0.00000 0.00000 0.58070 0.58070	0.00000 0.00000 0.17985 0.17985 0.03137 0.03137 0.00001 0.00001 0.13170 0.13170 0.06943 0.06943 0.00001 0.00001	0.00693 0.00693 0.00000 0.00000 0.17985 0.17985 0.03137 0.03137 0.00001 0.00001 0.13170 0.13169 0.06943 0.06943 0.00001 0.00002 0.58070 0.58070	0.00693 0.00693 0.00000 0.00000 0.17985 0.17985 0.03137 0.00137 0.00001 0.00000 0.13168 0.13166 0.06943 0.06943 0.00003 0.00003 0.58071 0.58071	0.00001 0.00001 0.17984 0.17984 0.03138 0.03138 0.00000 0.00000 0.13164 0.13160	0,00002 0,17983 0,03139 0,00000 0,13157 0,06944 0,00009

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CASE= 3 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	3 0/F= 0.5000 7.3 2269.3 3625.1 7.7276-5 28.779 0.5217 1.1811 880.0	17.2400 1.0000 14.7 2286.2 3655.5 1.5360-4 28.816 0.4887 1.1895 885.8	F/A= 0 1.5000 22.0 2295.1 3671.4 2.2967-4 28.835 0.4715 1.1944 889.0	2.0000 29.4 2300.8 3681.8	PERCENT F 3.0000 44.1 2308.4 3695.3 4.5716-4 28.864 0.4459 1.2024 894.1	UEL = 5. 4.0000 58.8 2313.2 3704.1 6.0848-4 28.875 0.4365 1.2056 896.1	,4825 P 6,0000 88.2 2319.5 3715.4 9,1069-4 28,888 0,4245 1,2099 898.7	HI= 0.850 10.000 147.0 2326.4 3727.8 1.5141-3 28.903 0.4114 1.2149 901.7	15.000 220.4 2331.1 3736.3	20.000 293.9 2334.1 3.0199-3 28.920 0.3967 1.2210 905.2	30.000 440.9 2337.9 3748.5 4.5238-3 28.928 0.3896 1.2242 907.0	40.000 587.8 2340.3 3752.8 6.0267-3 28.934 0.3851 1.2262 908.1	50.000 734.8 2342.0 3755.9 7.5288-3 28.937 0.3820 1.2276 908.9
MOLE FRACTIONS AR CO CO2 H02 H20 N0 N02 N2 0 OH	0.00876 0.00814 0.10539 0.00044 0.00000 0.00147 0.10379 0.00563 0.00000 0.73055 0.00101 0.00495 0.02987	0.00877 0.00660 0.10707 0.00031 0.00000 0.00117 0.10456 0.00576 0.00000 0.73142 0.00078 0.00042 0.00442	0.00877 0.00579 0.10796 0.00000 0.00102 0.10497 0.00583 0.00000 0.73'88 0.00066 0.00413 0.02875	0.00878 0.00575 0.10555 0.00021 0.000092 0.10524 0.00588 0.00000 0.73218 0.00059 0.00392 0.02849	0.00878 0.00455 0.10931 0.00016 0.00079 0.10559 0.00593 0.00000 0.73256 0.00050 0.00364 0.002817	0.00878 0.00469 0.10981 0.60014 0.00000 0.00071 0.10582 0.00597 0.00000 0.73281 0.00045 0.00344 0.02796	0.00879 0.00351 0.11045 0.00011 0.00000 0.10612 0.00602 0.00001 0.73313 0.00038 0.00318 0.02770	0.00879 0.00287 0.11115 0.00008 0.00001 0.00049 0.10646 0.00608 0.00001 0.73349 0.00030 0.00287 0.02742	0.00880 0.00243 0.11163 0.00006 0.00001 0.00041 0.10671 0.00061 0.73373 0.00025 0.00253 0.02723	0.00880 0.00216 0.11193 0.00005 0.00001 0.00036 0.10686 0.00614 0.00001 0.73388 0.00022 0.00248	0.00880 0.00181 0.11230 0.00004 0.00001 0.00030 0.10706 0.00617 0.00001 0.73407 0.00018 0.00227 0.02697	0.00880 0.00160 0.11254 0.00003 0.00001 0.00027 0.10719 0.00016 0.73419 0.00016 0.00213 0.00213	0.00880 0.00145 0.11270 0.00003 0.00001 0.00024 0.10728 0.00620 0.73428 0.00015 0.00202 0.00202
CASE= 3 P, ATM P, PSIA	0.5000 7.3	16.2822 1.0000 14.7	F/A= 0. 1.5000 22.0	2.0000 29.4	PERCENT F 3.0000 44.1	UEL= 5. 4.0000 58.8	6.0000 88.2	HI= 0.900 10.000 147.0	15.000 220.4	20.000 293.9	30.000 440.9	40.000 587.8	50.000 734.8
T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	2312.9 3703.6 7.5592-5 28.693 0.5803 1.1693 885.2	2334.2 3741.9 1.5005-4 28.740 0.5423 1,1769 891.5	2345.7 3762.6 2.2416-4 28.765 0.5221 1.1815 895.0	2353.4 3776.4 2.9808-4 28.782 0.5086 1.1847 897.5	2363.6 3794.7 4.4554-4 28.804 0.4907 1.1893 900.8	2370.3 3806.8 5.9267-4 28.818 0.4789 1.1925 903.1	2379.1 3822.7 8.8629-4 28.838 0.4635 1.1970 906.2	2389.1 3840.8 1.4721-3 28.859 0.4459 1.2026 909.8	2396.2 3853.5 2.2028-3 28.875 0.4335 1.2068 912.5	2400.8 3861.8 2.9324-3 28.885 0.4254 1.2096 914.3	2406.7 3872.3 4.3898-3 28.897 0.4151 1.2135 916.7	2410.4 3879.0 5.8457-3 28.906 0.4085 1.2161 918.2	2413.1 3883.9 7.3004-3 28.911 0.4038 1.2180 919.4

CASE= 4 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2071.3 T, DEG F 3268.6 RHO, G/CC 7.4159-5 M, MOL WT 25.208 CP, CAL/(G K) 0.3834 GAMMA (S) 1.2640 SON VEL,M/SEC 929.2	8,1411 F/A= 0.12283 1,0000 1,5000 2,0000 14.7 22.0 29.4 2073.4 2074.4 2075.0 3272.5 3274.3 3275.3 1,4819-4 2,2220-4 2,9619-4 25,213 25,215 25,216 0,3782 0,3788 0,3744 1,2671 1,2685 1,2694 930.8 931.5 931.3	44.1 58.8 88. 2075.7 2076.2 2076 3276.6 3277.4 3278 4.4416-4 5.9212-4 8.8799- 25.218 25.219 25.22 0.3726 0.3716 0.370 1.2704 1.2711 1.27	2 147.0 220.4 293.5 7 2077.2 2077.5 2077.5 2077.5 3279.8 3280.5 4 1.4797-3 2.2192-3 2.9588-10 25.221 25.222 25.22 4 0.3692 0.3684 0.367 8 1.2726 1.2731 1.273	3 440.9 587.8 734.8 2077.9 2078.1 2078.2 2 3280.6 3280.9 3281.0 3 4.4377-3 5.9167-3 7.3956-3 2 25.223 25.223 25.223 2 0.3674 0.3671 0.3668 4 1,2737 1.2739 1.2741
MOLE FRACTIONS AR CO 0.16449 CO2 0.03367 H 0.00113 H2 0.09483 H20 0.09324 NH3 0.00000 N0 0.00001 N2 0.60528 OH 0.00013	0.00723 0.00723 0.00723 0.16457 0.16460 0.16452 0.03363 0.03361 0.03360 0.00081 0.00066 0.00058 0.09493 0.09498 0.09501 0.09335 0.09339 0.09342 0.00000 0.09000 0.00000 0.00001 0.00001 0.00001 0.60539 0.60544 0.60547 0.00009 0.00068 0.00007	0.16465 0.16466 0.1648 0.03359 0.03358 0.0339 0.00047 0.60041 0.000 0.09565 0.09507 0.0950 0.09345 0.09347 0.0939 0.00000 0.00000 0.0000 0.00001 0.00000 0.0000 0.60550 0.60552 0.6055	88 0.16469 0.16471 0.1647 7 0.03356 0.03356 0.0335 14 0.00026 0.00021 0.0001 19 0.09512 0.09513 0.0951 10 0.0952 0.09354 0.0935 10 0.00000 0.00001 0.0000 0.00000 0.00000 0.0000 10 0.00000 0.00000 0.00000 10 0.00000 0.00000 0.00000	0.16472 0.16472 0.16473 0.00355 0.03355 0.03355 0.00015 0.00013 0.00012 0.09514 0.09515 0.09515 0.09055 0.09356 0.09356 0.00001 0.00002 0.00002 0.00000 0.00000 0.00000 0.60561 0.60562 0.60563
CASE= 4 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1934.0 T, DEG F 3021.5 RHO, G/CC 7.7104-5 M, MOL WT 24.472 CP, CAL/(GI(K) 0.3769 GAMMA (S) 1.271 SON VEL,M/SEC 916.0	7.3270 F/A= 0.13648 1.0000 1.5000 2.0000 14.7 22.0 29.4 1934.9 1935.3 1935.6 3023.2 3023.9 3024.4 1.5415-4 2.3118-4 3.0820-4 24.474 24.475 24.476 0.3743 0.3732 0.3725 1.2788 1.2795 1.2800 916.8 917.2 917.4	44.1 58.8 88 1935.9 1936.1 1936 3024.9 3025.2 3025 4.6224-4 6.1627-4 9.2432- 24.476 24.477 24.4 0.3717 0.3712 0.37(1.2805 1.2809 1.28	2 147.0 220.4 293.1 31936.5 1936.7 1936.6 3026.0 3026.3 3026.4 1.5404-3 2.3105-3 3.0805-17 24.478 24	440.9 587.8 734.8 71 1936.9 1936.9 1937.0 71 3026.6 3026.8 3026.9 72 34.6206-3 6.1606-3 7.7006-3 73 24.479 24.479 24.479 74 32 32 32 32 32 32 32 32 32 32 32 32 32
HOLE FRACTIONS AR 0.00693 CO 0.18548 CO2 0.02568 H 0.00051 H2 0.12577 H20 0.07506 NH3 0.00000 N2 0.58055 OH 0.00003	0.00693 0.00693 0.00693 0.18551 0.18552 0.18553 0.02567 0.02566 0.02565 0.00036 0.00030 0.00026 0.12583 0.12585 0.12537 0.07509 0.07511 0.07512 0.00000 0.00000 0.00000 0.58059 0.58061 0.58062 0.00002 0.00002 0.00001	0.18554 0.18555 0.1855 0.02565 0.02564 0.0256 0.00021 0.00018 0.000 0.12589 0.12590 0.125 0.07513 0.07513 0.075 0.00000 0.00000 0.0000	56 0.18557 0.18557 0.18557 0.18554 40 0.02564 0.02564 0.02565 50 0.00012 0.00009 0.00000 11 0.12592 0.12592 0.12594 40 0.07515 0.07515 0.07517 00 0.00001 0.00001 0.00001 66 0.58067 0.58068 0.58066	7 0.18558 0.18558 0.18558 4 0.02564 0.02564 0.02564 8 0.00007 0.00006 0.00005 2 0.12592 0.12591 0.12590 5 0.07516 0.07516 0.07516 2 0.00002 0.00003 0.00004 8 0.58069 0.58069

CASE= 6 0/F= P, ATM 0.5000 P, PSIA 7 I, DEG K 2473 T, DEG F 3992 RHO, G/CC 7.0073-E M, MOL HT 28.44 CP, CAL/(G)IK) 0.714 GAMMA (S) 1.1525 SON VEL,M/SEC 912.8	1.0000 1 14.7 14.7 18. 2505.2 2! 18. 4049.7 44 16. 1.3370-4 2.00 28.513 2! 19. 0.6642 0 10. 1.1590 1	/A= 0.05800 .5000 2.0000 22.0 29.4 523.0 2535.2 081.7 4103.7 687-4 2.7476-4 8.552 28.579 .6367 0.6181 .1629 1.1657 924.3 927.3	PERCENT FUEL = 3.0000 4.00 44.1 58 2551.7 2563 4133.4 4153 40999-4 5.4472 28.615 28.6 0.5733 0.57 1.1698 1.17 931.3 934	00 6.0000 .8 88.2 .0 2578.1 .6 4180.8 -4 8.1324-4 1 40 28.673 56 0.5543 27 1.1769	II = 0.8500 10.000	20.000 293.9 2617.6 4252.0 2.6779-3 28.760 0.4966 1.1896 948.8	30.000 440.9 2629.1 4272.6 4.0029-3 28.785 0.4800 1.1939 952.2	40.000 50.00 587.8 734, 2636.6 2642, 4286.2 4296. 5.3249-3 6.6450- 28.802 28.81 0.4690 0.461 1.1968 1.199 954.4 956.	8 2 2 3 4 0
MOLE FRACTIONS AR CO 0.0218 CO2 0.0903 H 0.0019 HO2 0.0000 H2 0.0000 N2 0.0068 N0 0.0068 N0 0.0068 N0 0.0000 O 0.0032 O 0.0032 OH 0.01000 O 0.0032	7 0.01929 0.6 8 0.09318 0.6 5 0.00147 0.6 0 0.00001 0.7 7 0.00331 0.6 8 0.09826 0.6 8 0.00918 0.6 9 0.00267 0.6 9 0.00931 0.6	00869 0.00869 01780 0.016-75 09483 0.09598 00124 0.00109 00001 0.00001 00300 0.00279 09905 0.09959 00936 0.00949 00000 0.00000 72289 0.72351 00235 0.00214 00887 0.00856	0.00871 0.008 0.01531 0.014 0.09757 0.098 0.00090 0.000 0.00251 0.002 0.10032 0.100 0.00965 0.009 0.00000 0.000 0.72436 0.724 0.00187 0.001 0.00811 0.007 0.00368 0.037	30 0.01293 60 0.00165 01 0.00065 01 0.00001 32 0.00207 32 0.10149 75 0.00989 01 0.00001 10 0.00147 79 0.00734	0.00873 0.00874 0.01128 0.01005 0.10198 0.10333 0.00050 0.00040 0.00001 0.00001 0.00177 0.00156 0.10229 0.10287 0.01005 0.1017 0.00001 0.00001 0.72662 0.72729 0.00122 0.00104 0.00679 0.00635 0.02874 0.02816	0.00875 0.00922 0.10423 0.00035 0.00001 0.00142 0.10326 0.01024 0.00001 0.72774 0.00093 0.00605 0.02777	0.00876 0.00812 0.10543 0.00028 0.00022 0.00124 0.10378 0.01033 0.00001 0.72834 0.00080 0.00564 0.02726	0.00876 0.0087 0.00739 0.0068 0.10622 0.1068 0.00023 0.0002 0.00002 0.0000 0.00112 0.0010 0.10413 0.1043 0.01040 0.0104 0.00002 0.0000 0.72873 0.7295 0.00071 0.0066 0.00535 0.0051	86 81 92 93 98 94 92 95 95 95
CASE= 6 0/F: P, ATM 0.5000 P, PSIA 7 T, DEG K 2499 T, DEG F 4038.0 RHO, G/CC 6.9060-7 M, MOL HT 28.320 CP, CAL/(G KK) 0.7640 GAMMA (S) 1.1477 SON VEL,M/SEC 917.6	1.0000 1 14.7 2.2534.0 29 3.4101.5 4 5.1.3659-4 2.0 5.28,401 29 0.7123 0 0.7123 1	.5000 2.0000 22.0 29.4 553.6 2567.2 136.8 4161.2	PERCENT FUEL= 3.0000 4.00 44.1 58 2585.7 2596 4194.5 4217 4.0317-4 5.3546 28.514 28.5 0.6385 0.62 1.1633 1.16 936.5 939	00 6.0000 .8 88.2 .4 2615.7 .4 4248.6 -4 7.9892-4 1 42 28.580 10 0.5974 60 1.1698	II= 0.9000 10.000 15.000 147.0 220.4 2636.4 2652.0 4285.9 4313.8 32322-3 1.9755-3 28.625 28.659 0.5696 0.5491 1.1746 1.1785 948.4 952.2	20,000 293,9 2662,4 4332,7 2,6257-3 28,682 0,5353 1,1813 954,9	30.000 440.9 2676.4 4357.9 3.9221-3 28.713 0.5169 1.1853 958.5	40,000 50,00 587.8 734, 2685.8 2692, 4374.8 4387, 5.2150-3 6.5053- 28.733 28.74 0.5046 0.495 1.1881 1.190 960.9 962.	8 8 3 18 5 18 5 13

CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2282.0 T, DEG F 3647.9 RHO, G/CC 6.7203-5 M, MOL WT 25.168 CP, CAL/(GI(K) 0.4250 GAMMA (S) 1.2426 SON VEL,M/SEC 967.9	14.7 22.0 2289.3 2292.7 3661.0 3667.2 1.3406-4 2.0084-4 2. 25.183 25.190 0.4096 0.4024	2.0000 3.0000 29.4 44.1 2294.8 2297.4 3671.0 3675.6	EL= 10.9396 PI 4.0000 6.0000 55.8 88.2 2298.9 2300.8 3678.4 3681.7 33440-4 8.0106-4 25.203 25.206 0.3897 0.3858 1.2600 1.2621 977.6 978.7	HI = 1.8000 10.000 15.000 147.0 220.4 2302.7 2304.0 3685.2 3687.4 1.3342-3 2.0004-3 25.210 25.213 0.3819 0.3794 1.2642 1.2656 979.8 980.6	20.000 30.000 293.9 440.9 2304.7 2305.6 3688.8 3690.4 2.6666-3 3.9986-3 25.214 25.214 0.3780 0.3762 1.2665 1.2675 981.1 981.6	587.8 734.8 2306.1 2306.5 3691.3 3692.0
MOLE FRACTIONS AR CO 0.16647 CO2 0.3137 H2 0.09147 H20 0.09474 H20 0.00000 N0 0.00008 N2 0.60426 0 0.00002 OH 0.00062 OH 0.00061	0.16667 0.16677 0.03129 0.03125 0.00276 2.00229 0.09180 0.09185 0.09509 0.09526 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00010 0.00011 0.00011 0.00011 0.00011 0.00011 0.00014 0.00039 0.000039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.00039 0.000039 0.00039 0.00039 0.00039 0.000039 0.000039 0.000039 0.000039	0.16693 0.16690 0.03122 0.03119 0.00201 0.00166 0.09205 0.09218 0.09536 0.09549 0.00000 0.00000 0.00005 0.00004 0.60491 0.60504 0.00005 0.00000 0.00005 0.00000	0.00722 0.00723 0.16694 0.16699 0.03118 0.03115 0.60145 0.00120 0.09224 0.09232 0.09556 0.09565 0.0000 0.00003 0.60512 0.60522 0.00000 0.00000 0.00025 0.00020 0.00025 0.00020	0.00723 0.00723 0.16704 0.16708 0.03113 0.03112 0.00094 0.00077 0.09241 0.09246 0.09575 0.09581 0.00000 0.00000 0.60532 0.60538 0.00000 0.00000 0.00016 0.00013 0.00000 0.00000	0.00723 0.00723 0.16710 0.16712 0.03111 0.03110 0.00067 0.00055 0.09250 0.09253 0.09584 0.0958 0.00001 0.00001 0.00001 0.00001 0.60542 0.60544 0.00000 0.00000 0.00012 0.00000	0.16714 0.16715 0.03110 0.03109 0.00048 0.00043 0.09255 0.09257 0.09591 0.09593 0.00001 0.00001 0.00001 0.00001 0.60549 0.60551 0.00000 0.00000 0.00008 0.00007
CASE= 7 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2149.3 T, DEG F 3409.0 RHO, G/CC 6.9320-5 M, MOL WT 24.451 CP, CAL/(G IK) 0.4027 GAMMA (S) 1.2614 SON VEL, M/SEC 960.1	14.7 22.0 2153.1 2154.8 3415.9 3419.0 1.3844-4 2.0752-4 2. 24.459 24.462	2.0000 3.0000 29.4 44.1 2155.9 2157.2 3420.9 3423.2	4.0000 6.0000 58.8 88.2 2157.9 2158.9 3424.6 3426.3	HI = 2,0000 10,000 15,000 147,0 220,4 2159,8 2160,4 3428,0 3429,0 1,3808-3 2,0708-3 24,472 24,474 0,3789 0,3776 1,2749 1,2758 967,2 967,7	20,000 30,000 233,9 440.5 2160.8 2161.2 3429,7 340.5 27,607-3 4,1404-2 24,474 24,475 0,3768 0,3765 1,2763 1,2766 967,9 968.2	587.8 734.8 2161.5 2161.6 3430.9 3431.3 5.5200-3 6.8995-3 24.476 24.477 0.3753 0.3749 1.2772 1.2774
MOLE FRACTIONS AR CO2 0.18767 CO2 0.02330 H 0.00267 H2 0.12261 H20 0.07719 NH3 0.00000 N0 0.30002 N2 0.58004 OH 0.00017	0.18779 0.18784 0 0.02326 0.02323 0 0.00150 0.00124 0 0.12285 0.12296 0 0.07732 0.07738 0 0.00000 0.00000 0 0.00001 0.00001 0 0.58022 0.58031 0	0.18787	0.00693 0.00693 0.18793 0.18796 0.02319 0.02318 0.00077 0.00063 0.12315 0.12321 0.07749 0.07752 0.00000 0.00000 0.00000 0.00000 0.58046 0.58050 0.58066 0.58050 0.00005	0.00693 0.00693 0.18799 0.18801 0.02317 0.02316 0.00049 0.00040 0.12327 0.12330 0.07755 0.7758 0.00001 0.00001 0.00000 0.00000 0.58055 0.58057 0.58055 0.58057	0.00693 0.00693 0.18802 0.18803 0.02316 0.00316 0.00035 0.00025 0.12332 0.12334 0.07759 0.07760 0.00001 0.00002 0.00000 0.00000 0.58059 0.58061 0.00003 0.00002	0.18804 0.18804 0.02315 0.02315 0.00025 0.00022 0.12335 0.12335 0.07761 0.07762 0.00000 0.00003 0.00000 0.00000 0.58063 0.58064

C 1.000000 H 1.906695 AR 1.000000 0 2.000000 C 1.000000 0 2.000000 N 2.000000 0.000000 O 2.000000 0.000000	00 000000,0 000000,0 0 00 000000,0 000000,0 0 00 000000,0 000000,0 0	0.000000 0.01285800 0.000000 0.00045600 0.000000 0.75525296	-5059.80 L 298.150 F 0.00 G 400.000 0 0.00 G 400.000 0 0.00 G 400.000 0 0.00 G 400.000 0	0.80700 0.00000 0.00000 0.00000 0.00000
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 678.5 T, DEG F 761.7	14.7 22.0 29.4 678.5 678.5 678.5 761.7 761.7 761.7 5.2024-4 7.8037-4 1.0405-3 28.966 28.966 28.966 0.2581 0.2581 0.2581 1.3620 1.3620 1.3620	3.0000 4.0000 6.0000 44.1 58.8 88.2 678.5 678.5 678.5 761.7 761.7 761.7	PHI= 0.1000 10.000 15.000 20.000 147.0 220.4 293.9 678.5 678.5 678.5 761.6 761.6 761.6 5.2024-3 7.8037-3 1.0405-2 28.966 28.966 28.966 0.2581 0.2581 0.2581 1.3620 1.3620 1.3620 515.0 515.0	30.000 40.000 50.000 440.9 587.8 734.8 678.5 678.5 678.5 761.6 761.6 761.6 1.5607-2 2.0810-2 2.6012-2 28.966 28.966 28.966 0.2581 0.2581 0.2581 1.3620 1.3620 1.3620 515.0 515.0 515.0
MOLE FRACTIONS AR 0.00926 C02 0.01439 H20 0.01343 N2 0.77566 02 0.18727	0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565	0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565 0.18727 0.18727 0.18727	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.77565 0.77565 0.77565 0.18727 0.18727 0.18727
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 932.9 T, DEG F 1219.5	14.7 22.0 29.4 9 932.9 932.9 932.9 6 1219.5 1219.5 1219.5 13.7841-4 5.6762-4662-4 28.968 28.768 28.968 0.2756 0.2756 0.2756 1.3315 1.3315 1.3315	3.0000 4.0000 6.0000 44.1 58.8 88.2 932.9 932.9 932.9 1219.5 1219.5 1219.5	PHI= 0.2000 10.000 15.000 20.000 147.0 220.4 293.9 932.9 932.9 932.9 1219.5 1219.5 1219.5 3.7841-3 5.6762-3 7.5683-3 28.968 28.968 28.968 0.2756 0.2756 0.2756 1.3314 1.3314 1.3314 597.1 597.1 597.1	30,000 40,000 50,000 440.9 587.8 734.8 932.9 932.9 932.9 1219.5 1219.5 1219.5 1.352-2 1.5137-2 1.8921-2 28,968 28,968 28,968 0.2756 0.2756 0.2756 1,3314 1.3314 1.3314 597.1 597.1 597.1
MOLE FRACTIONS AR CO2 0.02825 H20 0.02665 N0 0.00001 N02 0.00000 N2 0.77046 O2 0.16534	0 0.02829 0.02829 0.02829 0 0.02669 0.02669 0.02669 0 0.00001 0.00001 0.00001 0 0.00000 0.00000 0.00030 0 0.77046 0.77046 0.77046	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.00001 0.00001 0.00001 0.00000 0.00000 0.00000 0.77046 0.77046 0.77046 0.16534 0.16534 0.16534	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.00001 0.00001 0.00001 0.00000 0.00000 0.00000 0.77046 0.77046 0.77046 0.16534 0.16534 0.16534	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02669 0.02669 0.02669 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.77046 0.77046 0.77046 0.16534 0.16534 0.16534

MOLE FRACTIONS ARC Co.	P, PSIA T, DEG K 2: T, DEG F 3: RHO, G/CC 7.4: M, MOL WT CP, CAL/[G]{K} 0 GAMMA (S) 1	7.3 1 346.6 237 764.3 380 231-5 1.471 8.588 28. .6339 0.5	253 F/A= 0. 1,5000 1,5000 14.7 22.0 16.6 2385.3 18-4 2.1973-4 642 28.671 6938 0.5722 6675 1,1715 66.5 900.2	2.0000 29.4 2394.7 3850.7	PERCENT F 3.0000 44.1 2407.3 3873.4 4.3617-4 28.719 0.5383 1.1784 906.2	4.0000 58.8 2415.8 3888.7	6.0000 88.2 2427.2 3909.2	PHI= 0.950 10.000 147.0 2440.5 3933.2 1.4377-3 28.791 0.4878 1.1905 916.0	15.000 220.4 2450.2 3950.7	20.000 293.9 2456.7 3962.3 2.8599-3 28.896 0.4633 1.1974 921.1	30.000 440.9 2465.1 3977.5 4.2779-3 28.844 0.4504 1.2014 923.9	40.000 587.8 2470.7 3987.5 5.6934-3 28.855 0.4420 1.2041 925.9	50.000 734.8 2474.7 3994.8 7.1072-3 28.865 0.4357 1.2062 927.3
CASE= 3	AR 0.1 CO 0.0 CO2 0.1 H 0.1 H02 0.4 H2 0.1 H20 0.0 N0 0.1 N02 0.1 N2 0.0 0 0.1 OH 0.1	01816 0.01 10703 0.10 00100 0.00 00000 0.00 11231 0.11 00483 0.00 00000 0.00 72139 0.72 00116 0.00 00587 0.00	1586 0.01455 1595 0.11101 1074 2.00061 1000 0.00000 1285 0.00258 1344 0.11406 1488 0.00490 1000 0.00000 1274 0.72348 10091 0.00078 1531 0.00499	0.01365 0.11201 0.00053 0.00000 0.00239 0.11448 0.00491 0.00000 0.72399 0.00070	0.01241 0.11336 0.00044 0.00000 0.00215 0.11505 0.00492 0.00000 0.72468 0.00060 0.00445	0.01156 0.11429 0.00030 0.00000 0.00198 0.11543 0.00491 0.00000 0.72515 0.00053 0.00423	0.01041 0.11555 0.00031 0.00000 0.00176 0.11593 0.00491 0.00000 0.72578 0.00045 0.00394	0.90905 0.11703 0.00024 0.00000 0.00151 0.11652 0.00489 0.00000 0.72651 0.00358	0.00805 0.11813 0.00019 0.00000 0.00133 0.11695 0.00487 0.00000 0.72705 0.00030	0.00738 0.11886 0.00016 0.00001 0.00121 0.11723 0.00486 0.00000 0.72741 0.00027 0.00312	0.00649 0.11983 0.00013 0.00000 0.0106 0.11760 0.00484 0.00000 0.72789 0.00022 0.00288	0.00590 0.12047 0.00011 0.00096 0.11784 0.00482 0.00001 0.72820 0.00021	0.00548 0.12094 0.00009 0.00001 0.00088 0.11802 0.00480 0.00001 0.72843 0.00018
AR 0.00858 0.00859 0.00860 0.00861 0.00862 0.00863 0.00863 0.00864 0.00865 0.00866 0.00866 0.00867 0.0	P, ATM 0 P, PSIA T, DEG K 2: T, DEG F 2: RHO, G/CC 7.3 M, MOL HT 2: CP, CAL/IGJIK) 0 GAMMA (S) 1	.5000 1.0 7.3 1 370.5 239 807.1 385 162-5 1.49 8.462 28. .6688 0.6 .1565 1.1	0000 1,5000 14.7 22.0 97.6 2412.7 55.9 3883.1 97-4 2.1633-4 5520 28.553 5276 0.6055 1625 1,1662	06824 2,0000 29.4 2423.1 3901.8 2.8744-4 28.575 0.5906 1,1687	3.0000 44.1 2437.2 3927.2 4.2911-4 28.605 0.5708 1.1724	4.0000 58.8 2446.8 3944.5 5.7031-4 28.626 0.5575 1.1750	3881 P 6.0000 88.2 2459.8 3967.9 8.5177-4 28.654 0.5398 1.1787	10.000 147.0 2475.3 3995.8 1.4124-3 28.687 0.5192 1.1833	15.000 220.4 2486.8 4016.5 2.1105-3 28.712 0.5041 1.1869	293.9 2494.6 4030.5 2.8069-3 28.728 0.4941 1.1894	440.9 2505.0 4049.3 4.1961-3 28.750 0.4808 1.1929	587.8 2512.0 4061.8 5.5821-3 28.765 0.4721 1.1954	734.8 2517.1 4071.2 6.9659-3 28.776 0.4656 1.1973
	AR 0.0 CO2 0.0 H 0.1 H2 0.1 H20 0.1 N2 0.0 O 0.1 N2 0.0 O 0.1 N2	02502 0.02 10576 0.10 00134 0.00 00476 0.00 11603 0.11 00417 0.00 71624 0.71 00110 0.00 00590 0.00	2260 0.02121)844 0.10998 0101 0.00085)419 0.00387 1732 0.11803)413 0.00409 1773 0.71857)084 0.00072)531 0.00497	0.02023 0.11105 0.00075 0.00365 0.11851 0.00406 0.71915 0.00064 0.00473	0.01889 0.11254 0.00063 0.00336 0.11916 0.00400 0.71995 0.00054 0.00440	0.01796 0.11357 0.00055 0.00316 0.11960 0.00395 0.72049 0.00048	0.01668 0.11498 0.00046 0.00290 0.12020 0.00387 0.72124 0.00040 0.00385	0.01513 0.11668 0.00036 0.00259 0.12089 0.00375 0.72213 0.00031	0.01396 0.11797 0.00030 0.00236 0.12141 0.00364 0.72280 0.00026 0.00318	0.01316 0.11884 0.00026 0.00221 0.12175 0.00357 0.72326 0.00022 0.00298	0.01208 0.12002 0.00021 0.00200 0.12220 0.00345 0.72388 0.00018 0.00271	0.01135 0.12082 0.00018 0.00187 0.12251 0.00336 0.72430 0.00016 0.00254	0.01080 0.12141 0.00016 0.00177 0.12273 0.00329 0.72461 0.00014 0.00240

AR 1.000000 0.00 C 1.000000 0 2.00 N 2.000000 0.00	00000.0 96430 00000.0 00000 00000.0 00000 00000.0 00000	0.000000 00 0 0.000000 00 0 0.000000 00 0	0.00000.0 0.000000.0 0.000000.0	00.00000000 -9 0.01285800 0.00045600 0.75525296 0.23143297	0.00 G 0.00 G 0.00 G 0.00 G 0.00 G	298.150 F 1000.000 0 1000.000 0 1000.000 0 1000.000 0	0.80700 0.00000 0.00000 0.00000 0.00000
P, ATM 0. P, PSIA 1. DEG K 12 T, DEG F 1. AZ M, MOL WI 28 CP, CAL/IGIKI 0. GAMMA (S) 1.	3,966 28,966	F/A= 0.00682 F 1.5000 2.0000 22.0 4 1238.9 1238.9 1770.3 2740-4 5.6987-4 8 28.966 28.966 0.2865 0.2865 0.2865 1.3149 683.8 683.8	44.1 1238.9 1770.3 3.5481-4 1. 28.966 0.2865	4.0000 6.0000 58.8 88.2 1238.9 1238.9 1770.3 1770.3	147.0 1238.9 1770.3 2.8494-3 4. 28.966 0.2865	15.000 20.000 220.4 293.9 1238.9 1238.9 1770.3 1770.3 2741-3 5.6988-3 28.966 28.966 0.2865 0.2865 1.3149 1.3149 683.8 683.8	30,000 40,000 50,000 440,9 587,8 734,8 1238,9 1238,9 1238,9 1770,3 1770,3 1770,3 8,5482-3 1,1398-2 1,4247-2 28,966 28,966 28,966 0,2865 0,2865 0,2865 1,3149 1,3148 1,3148 683,8 683,8 683,8
CO2 0.0 H2O 0.0 NO 0.0 NO2 0.0 N2 0.7	01439 0.01439 0 01343 0.01343 0 00027 0.00027 0 00000 0.00000 0 77551 0.77551 0	0.01439 0.01439 0.01343 0.01343 0.00027 0.00027 0.00000 0.00000 0.77551 0.77551	0.01439 0 0.01343 0 0.00027 0 0.00001 0 0.77551 0	0.01439 0.01439 0.01343 0.01343 0.00027 0.00027 0.00001 0.00001 0.77551 0.77551	0.01439 0 0.01343 0 0.00027 0 0.00001 0 0.77551 0	.00926 0.00926 .01439 0.01439 .01343 0.01343 .00027 0.00027 .00001 0.0002 .77551 0.77551 .18712 0.18712	0.00926 0.00926 0.00926 0.01439 0.01439 0.01439 0.01343 0.01343 0.01343 0.00027 0.00027 0.00027 0.00002 0.00002 0.00002 0.77551 0.77551 0.77551 0.18712 0.18712 0.18711
P, ATM 0. P, PS1A 1. DEG K 14 T, DEG F 21 RHO, G/CC 1.20 M, MOL WT 28 CP, CAL/(G K) 1. GAMMA (S) 1.	0/F= 73.2700 .5000 1.00000 7.3 14.7 161.4 1461.4 170.8 2170.8 3.968 28.968 2.997 0.2996 2.970 1.2970 737.6 737.6	1.5000 2.0000 22.0 29.4 1461.4 1461.4 2170.8 2170.8	44.1 1461.4 2170.9 7.2468-4 9. 28.968 0.2995	4.0000 6.0000 58.8 88.2 1461.4 1461.4 2170.9 2170.9	147.0 1461.4 2170.9 2.4156-3 3. 28.968 0.2994	15.000 20.000 220.4 233.9 1461.5 1461.5 2170.9 2170.9 6234-3 4.8311-3 28.968 0.2994 0.2994 0.2994 1.2972 1.2972 737.7 737.7	30,000 40,000 50,000 440.9 587.8 734.8 1461.5 1461.5 1461.5 2170.9 2170.9 2170.9 7,2467-3 9,6623-3 1,2078-2 28,968 28,968 28,968 0,2934 0,2934 0,2934 1,2972 1,2972 1,2972 737.7 737.7
CO2 0.0 H2O 0.0 NO 0.0 NO2 0.0 N2 0.7 OH 0.0	02829 0.02829 0 02667 0.02667 0 000096 0.00096 0 00000 0.00000 0 76998 0.76999 0 00003 0.00003 0	0.02668	0.02829 0 0.02668 0 0.00096 0 0.00001 0 0.76999 0	0.00920 0.00920 0.02829 0.02829 0.02668 0.02668 0.00066 0.00096 0.00001 0.00001 0.76999 0.76999 0.00002 0.00002 0.16486 0.16486	0.02829 0 0.02668 0 0.00096 0 0.00002 0 0.76999 0 0.00002 0	.00920 0.00920 .02829 0.02829 .02668 0.02668 .00096 0.00096 .00002 0.00002 .76999 0.76999 .00001 0.00001 .16485 0.16485	0.00920 0.00920 0.00920 0.02829 0.02829 0.02829 0.02668 0.02668 0.02668 0.00096 0.00096 0.00096 0.00003 0.00003 0.00003 0.76999 0.76999 0.76999 0.00001 0.00001 0.00001 0.16485 0.16484 0.16484

CASE= 6 0/F= P, ATM 0.5000 P, PSIA 7,3 T, DEG K 2520.0 T, DEG F 4076.3 RHO, G/CC 6.8183-5 M, MOL HT 28.198 CP, CAL/(-(K) 0.8054 GAMMA (S) 1.1447 SON VEL,M/SEC 922.2	1.0000 1.500 14.7 22.1 2557.0 2578.1 4142.9 4180. 1.3478-4 2.0084- 28.278 26.32 0.7516 0.722 1.1500 1.153	2.0000 29.4 2592.6 4206.8 2.6658-4 28.356 0.7026	PERCENT FU 3.0000 44.1 2612.7 4243.1 3.9741-4 28.400 0.6761 1.1589 941.5	4.0000 58.8 2626.5 4268.1	6.0000 88.2 2645.6 4302.3	HI= 0.950 10.000 147.0 2668.6 4343.8 1.3025-3 28.521 0.6059 1.1691 953.7	0 15.000 220.4 2686.1 4375.2 1.9436-3 28.559 0.5848 1.1726 957.6	20.000 293.9 2698.0 4396.7 2.5823-3 28.585 0.5707 1.1751 960.3	30.000 440.9 2714.2 4425.8 3.8551-3 28.620 0.5517 1.1786 964.0	40.000 587.8 2725.1 4445.6 5.1237-3 28.644 0.5390 1.1812 966.6	50.000 734.8 2733.4 4460.4 6.3894-3 28.662 0.5295 1.1831 968.6
MOLE FRACTIONS AR CO 0.00454 CO2 0.08935 H 0.00309 HO2 0.00000 H2 0.00000 N0 0.00773 N02 0.00000 N2 0.71008 O 0.00336 OH 0.01025 OH 0.01025 OH 0.01025	0.03132 0.0296 0.09252 0.0944 0.00241 2.0020 0.00000 0.0000 0.00571 0.0053 0.10583 0.1068 0.000795 0.0080 0.00000 0.0000 0.71201 0.7131 0.00274 0.0024 0.01111 0.0096	0.02P43 0.09573 0.09575 0.00185 0.00001 0.00501 0.00501 0.00501 0.00000 0.71388 0.00020 0.00933	0.02673 0.09764 0.00158 0.00001 0.00463 0.10846 0.00820 0.00000 0.71495 0.00192 0.00187	0.00859 0.02552 7.09898 0.00140 0.00001 0.00436 0.10910 0.00825 0.00000 0.71569 0.00174 0.00854 0.01781	0.00861 0.02383 0.10086 0.00118 0.00001 0.00400 0.10998 0.00829 0.00000 0.71672 0.00157 0.00857 0.01695	0.00862 0.02172 0.10319 0.00095 0.00001 0.00356 0.11103 0.00833 0.00000 0.71796 0.00125 0.00748 0.01589	0.00863 0.02007 0.10507 0.00001 0.00324 0.11182 0.00833 0.00001 0.71892 0.00107 0.00702 0.001508	0.00864 0.01893 0.10626 0.00069 0.00001 0.00302 0.11236 0.00833 0.00001 0.71958 0.00096 0.00670 0.01452	0.00865 0.01735 0.10799 0.00057 0.00001 0.00273 0.11308 0.00831 0.00001 0.72047 0.00082 0.00626 0.01376	0.00866 0.01627 0.10918 0.00049 0.00001 0.00253 0.11357 0.00829 0.00001 0.72109 0.00073 0.00595 0.01324	0.00866 0.01544 0.11008 0.00044 0.00001 0.00238 0.11393 0.00826 0.00001 0.72155 0.00066 0.00572 0.01285
CASE= 6 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2536.0 T, DEG F 4105.2 RHO, G/CC 6.7426-5 M, MOL HT 28.063 CP, CAL/(G)(K) 0.8330 GAMMA (S) 1.1430 SON VEL,M/SEC 926.7	1.0000 1.500 14.7 22. 2574.5 2596. 4174.4 4213.	2.0000 29.4 2611.7 4241.3 12.6342-4 28.226 7 0.7275 2 1.1534	PERCENT FU 3,0000 44.1 2632.7 4279.2 3,9260-4 28,272 0,7003 1,1566 946.3	4.0000 58.8 2647.3 4305.5	6.0000 88.2 2667.4 4341.6	HI = 1.000 10.000 147.0 2691.8 4385.6 1.2857-3 28.399 0.6287 1.1662 958.7	15.000 220.4 2710.5 4419.2	20.000 293.9 2723.3 4442.2 2.5477-3 28.467 0.5930 1.1719 965.5	30.000 440.9 2740.7 4473.6 3.8023-3 28.504 0.5738 1.1752 969.3	40.000 587.8 2752.7 4495.1 5.0523-3 28.529 0.5609 1.1775 971.9	50.000 734.8 2761.6 4511.2 6.2990-3 28.549 0.5514 1.1793 973.9

CASE= 2 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1167.3 T, DEG K 1641.5 RHO, G/CC 1.5122-4 M, MOL WT 28.970 CP, CAL//(G)IK1 0.2898 GAMMA (S) 1.3100 SON VEL,M/SEC 662.5	48.8467 F/A= 0.02047 1.0000 1.5000 2.000 14.7 22.0 29 1167.3 1167.3 1167 1641.5 1641.5 1641 3.0244-4 4.5366-4 6.0488 28.970 28.970 28.97 0.2898 0.2898 0.289 1.3100 1.3100 1.310 662.5 662.5 662	0 3,0000 4,0000 4 44.1 58.8 3 1167.3 1167.3 5 1641.5 1641.5 4 9.0732-4 1.2098-3 0 28.970 28.970 8 0.2898 0.2898 0 1,3100 1,3100	.0062 PHI= 0.3000 6.0000 10.000 15.0 88.2 147.0 220 1167.3 1167.3 1167 1641.5 1641.5 1641 1.8146-3 3.0244-3 4.5366 28.970 28.970 28.9 0.2898 0.2898 0.289 1.3100 1.3100 1.311 662.5 662.5 662	14 293.9 440.9 13 1167.3 1167.3 15 1641.5 1641.5 13 6.0488-3 9.0732-3 70 28.970 28.970 28 0.2898 0.2898 00 1.3100 1.3100	40.000 50.000 587.8 734.8 1167.3 1167.3 1641.5 1641.5 1.2098-2 1.5122-2 28.970 29.970 0.2698 0.2698 1.3100 1.3100 662.5 662.5
MOLE FRACTIONS AR 0.00914 CO2 0.04201 H20 0.03977 N0 0.00014 N02 0.00000 N2 0.76530 O2 0.14365	0.00914 0.00914 0.009 0.04201 0.04201 0.0427 0.03977 0.03977 0.0397 0.00014 2.00014 0.000 0.00000 0.00000 0.0000 0.76530 0.76530 0.765 0.14365 0.14365 0.1438	1 0.04201 0.04201 7 0.03977 0.03977 4 0.00014 0.00014 0 0.00000 0.00000 0 0.76530 0.76530	0.00914 0.00914 0.009 0.04201 0.04201 0.042 0.03977 0.03977 0.039 0.00014 0.00014 0.000 0.0001 0.00001 0.000 0.76530 0.75529 0.765 0.14365 0.14365 0.143	01 0.04201 0.04201 77 0.03977 0.03977 14 0.00014 0.00014 15 0.00001 0.00001 17 0.76529 0.76529	0.00914 0.00914 0.04201 0.04201 0.03977 0.03977 0.00014 0.00014 0.00001 0.00002 0.76529 0.76529 0.14364 0.14364
P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1385.7 T, DEG F 2034.5	36.6350 F/A= 0.02730 1.0000 1.5500 2.00 14.7 22.0 29 1385.7 1385.7 1385 2034.5 2034.5 2034 2.5479-4 3.8219-4 5.0956 28.971 28.971 28.97 0.3029 0.3029 0.302 1.2928 1.2928 1.292 717.0 717.0 717.	0 3.0000 4.0000 4 44.1 58.8 7 1385.7 1385.7 6 2034.6 2034.6 4 7.6437-4 1.0192-3 1 28.971 28.971 9 0.3028 0.3028 8 1.2928 1.2929	.6571 PHI= 0.4000 6.000 10.000 15.0 88.2 147.0 220 1385.7 1385.7 1385 2034.6 2034.6 2034 1.5287-3 2.5479-3 3.8218 28.971 28.971 28.9 0.3028 0.3028 0.30 1.2929 1.2929 1.29 717.0 717.0 717	.4 293.9 440.9 .7 1385.7 1385.7 .6 2034.6 2034.6 .3 5.0958-3 7.6436-3 .1 28.971 28.971 .8 0.3028 0.3028 .9 1.2929 1.2929	40.000 50.000 587.8 734.8 1385.7 1385.7 2034.6 2034.6 1.0192-2 1.2739-2 28.971 28.971 0.3028 0.3028 1.2929 1.2929 717.1 717.1
MOLE FRACTIONS AR C02 0.0554 H20 0.05266 N0 0.00005 N02 0.00000 N2 0.76005 OH 0.00002 0 112210	0.00908 0.00908 0.0090 0.05554 0.05554 0.0555 0.05266 0.05267 0.0526 0.00055 0.00055 0.0000 0.00000 0.00000 0.0000 0.76005 0.76005 0.7600 0.00002 0.00002 0.0000 0.12210 0.12210 0.122	4 0.05554 0.05554 7 0.05267 0.05267 5 0.00055 0.00055 0 0.00001 0.00001 5 0.76005 0.76005 1 0.00001 0.00001	0.00908 0.00908 0.009 0.05554 0.05554 0.055 0.05267 0.05267 0.052 0.00055 0.00055 0.000 0.00001 0.000 0.000 0.76005 0.76005 0.760 0.00001 0.00001 0.000 0.12210 0.12210 0.122	54 0.05554 0.05554 67 0.05267 0.05267 55 0.00055 0.00055 501 0.00001 0.00002 55 0.76005 0.76005 51 0.00001 0.00001	0.00908 0.00908 0.05554 0.05554 0.05267 0.05267 0.00055 0.00055 0.00002 0.00002 0.76005 0.76005 0.00001 0.00001 0.12209 0.12209

NOLE FRACTIONS	P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2384.2 T, DEG F 3831.9	13.9562 F/A= 0 1.0000 1.5000 14.7 22.0 2411.6 2426.7 3881.1 3908.4 1.4339-4 2.13°3-4 28.375 28.407 0.6269 0.6026 1.1634 1.1675 906.7 910.6	2.0000 3.0000 29.4 44.1 2437.0 2451.0 3927.0 3952.0	4.0000 6. 58.8 2460.4 24 3969.0 39 5.6423-4 8.42 28.478 28 0.5488 0. 1.1777 1.	.0000 10.000 88.2 147.0 473.0 2487.7 991.7 4018.1 282-4 1.3979-3 2. 8.505 28.536 .5285 0.5046	15,000 20,000 220,4 293,9 2498,4 2505,4 4037,4 4050,1 0895-3 27,796-3 28,558 28,573 0,4869 0,4749 1,1924 1,1957 931,3 933,7	30.000 40.000 440.9 587.8 2514.6 2520.5 4066.6 4077.3 4.1570-3 5.5319-3 28.592 28.604 0.4590 0.4484 1.2004 1.2037 936.9 939.1	50.000 734.8 2524.8 4085.0 6.9053-3 28.613 0.4406 1.2063 940.8
P, ATM 0.5000 1.0000 1.5000 2.0000 3.0000 4.0000 6.0000 10.000 15.000 20.000 30.000 40.000 50.000 P, PSIA 7.3 14.7 22.0 29.4 44.1 58.8 88.2 147.0 220.4 293.9 440.9 587.8 734.8 17. DEG K 2387.6 2413.0 2426.6 2435.7 2447.6 2455.5 2455.6 2476.7 2484.3 2439.1 2475.0 2498.6 2501.0 T, DEG F 3838.0 3883.6 3908.2 3924.6 3946.0 3960.1 39780.3 3998.4 4012.1 4020.7 4031.2 4037.7 4042.2 RHO, G/CC 7.1844-5 1.4255-4 2.1269-4 2.8271-4 4.2237-4 4.2237-4 1.3943-3 2.0862-3 2.7773-3 4.1578-3 5.5372-3 6.9158-3 M, MOL WT 28.151 28.205 28.233 28.252 28.277 28.293 28.314 28.337 28.353 28.362 28.374 28.381 28.386 CP, CAL/(G)IKI 0.6384 0.5880 0.5605 0.5419 0.5172 0.5006 0.4789 0.4543 0.4372 0.4263 0.4128 0.4044 0.3986 GAMMA (S) 1.1625 1.1710 1.1764 1.1803 1.1804 1.1901 1.1901 1.2036 1.2094 1.2133 1.2186 1.2222 1.2245 SON VEL,M/SEC 905.4 912.7 916.9 919.8 923.9 926.7 930.6 935.2 938.6 940.9 943.9 945.8 947.1 940.0 0.00042 0.00042 0.00042 0.00044 0.00334 0.03362 0.03771 0.03710 0.03632 0.03546 0.03488 0.03451 0.03407 0.03381 0.03362 0.00044 0.00049 0.00049 0.00044 0.00049 0.00044 0.00036 0.00049 0.00044 0.00049 0.00044 0.00036 0.00049 0.00044 0.00036 0.00049 0.00044 0.00036 0.00049 0.00044 0.00036 0.00044	AR 0.00850 C0 0.03306 C02 0.10310 H 0.00168 H2 0.00659 H20 0.11931 N0 0.00341 N2 0.71067 0 0.00094 OH 0.00561	0.03079 0.02949 0.10565 0.10710 0.00129 0.00110 0.00598 0.00565 0.12070 0.12147 0.00328 0.09317 0.71221 0.71307 0.00070 0.00059 0.00497 0.00460	0.02759 0.02736 0.10811 0.10948 0.00098 0.00083 0.00542 0.0051 0.12198 0.12268 0.00309 0.00296 0.71366 0.71447 0.00051 0.00042 0.00434 0.00397	0.02652 0.0 0.11042 0.1 0.00073 0.0 0.00491 0.0 0.12315 0.1 0.00286 0.0 0.71502 0.7 0.00036 0.0	0.02402 0 11169 0.11319 0 00062 0.00049 0 00465 0.00434 0 12377 0.12449 0 00271 0.00249 0 71577 0.71665 0 00029 0.00022 0 000337 0.00296 0	.02303 0.02238 .11429 0.11502 .00041 0.00036 .00412 0.00397 .12501 0.12535 .00231 0.00218 .71730 0.71773 .00017 0.00014 .000264 0.00243	0.02152 0.02097 0.11596 0.11658 0.00030 0.00026 0.00379 0.00367 0.12580 0.12609 0.00199 0.00185 0.71830 0.71868 0.00011 0.00009 0.00214 0.00195	0.02057 0.11702 0.00024 0.00358 0.12629 0.00175 0.71896 0.00008 0.00181
RF	P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2387.6 T, DEG F 3838.0 RHO, G/CC 7.1844-5 M, MOL WT 28.151 CP, CAL/(G)K) 0.6384 GAMMA (S) 1.1625	1.0000 1.5000 14.7 22.0 2413.0 2426.6 3883.6 3908.2 1.4245-4 2.1269-4 28.205 28.233 0.5880 0.5605 1.1710 1.1764	2,0000 3,0000 29,4 44,1 2435,7 2447,6 3924,6 3946,0 2,8271-4 4,2237-4 28,252 28,277 0,5419 0,5172 1,1803 1,1860	4.0000 6. 58.8 2455.5 24 3960.1 35 5.6169-4 8.35 28.293 26 0.5006 0	.0000 10.000 88.2 147.0 465.6 2476.7 978.3 3998.4 970-4 1.3943-3 2. 8.314 28.337 .4789 0.4543 .1961 1.2036	220.4 293.9 2484.3 2439.1 4012.1 4020.7 0862-3 2.7773-3 28.353 28.362 0.4372 0.4263 1.2094 1.2133	440.9 587.8 2495.0 2498.6 4031.2 4037.7 4.1578-3 5.5372-3 28.374 28.381 0.4128 0.4044 1.2186 1.2220	734.8 2501.0 4042.2 6.9158-3 28.386 0.3986 1.2245
	AR 0.00843 C0 0.04221 C02 0.09914 H 0.00199 H2 0.08994 H20 0.12204 N0 0.02653 N2 0.70466 0 0.00074 04 0.00503	0.04034 0.03932 0.10127 0.10245 0.00154 0.00131 0.00836 0.00805 0.12346 0.12422 0.00241 0.00227 0.70611 0.70690 0.00052 0.00042 0.00434 0.00394	0.03862 0.03771 0.10323 0.10427 0.001'7 0.00099 0.00784 0.00758 0.12472 0.12533 0.00215 0.00199 0.70743 0.70812 0.00036 0.000327	0.03710 0.0 0.10496 0.1 0.00088 0.0 0.00741 0.0 0.12582 0.0 0.00187 0.0 0.70861 0.0 0.00023 0.0	03632 0.03546 0 10585 0.10682 0 00074 0.00059 0 00719 0.00695 0 12639 0.12701 0 00169 0.00147 0 70922 0.70990 0 00018 0.00012 0 00266 0.00224 0	0.03451 10748 0.03451 0.00050 0.00044 0.00680 0.00670 112744 0.12772 0.00129 0.00118 0.71038 0.71068 0.00009 0.00007	0.03407 0.03381 0.10840 0.10870 0.00036 0.00032 0.00659 0.00652 0.12805 0.12826 0.00102 0.00092 0.71105 0.71129 0.00005 0.00004 0.00148 0.00132	0.03362 0.10891 0.00029 0.00647 0.12841 0.00084 0.71145 0.00003 0.00120

P, ATM P, PSIA T, DEG K T, DEG F T, DEG F PHO, G/CC M, MOL HT CP, CAL/(GI(K) O, GAMMA (S) 1.	.5000 1.0000 1.5000 7.3 14.7 22.0 668.8 1669.0 1669.1 544.1 2544.5 2544.6	1669.1 1669.2 2544.8 2544.9 4.2301-4 6.3449-4 28.968 28.969 0.3130 0.3128	4,0000 6.0 58.8 1669.3 166 2545.0 254 8,4596-4 1,268 28,969 28, 0,3127 0,3	PHI= 0.3000 10.000 15.000 18.2 147.0 220.4 19.3 1669.4 1669.4 15.1 2545.2 2545.3 19-3 2.1148-3 3.1721-3 1969 28.369 28.969 1125 0.3124 0.3123 12815 1.2816 1.2817 783.6 783.6 783.7	20.000 30.000 293.9 440.9 1669.5 1669.5 2545.3 2545.4 4.2294-3 6.3440-3 28.969 28.969 0.3122 0.3121 1.2818 1.2818 783.7 783.7	40.000 50.000 587.8 734.8 1669.5 1669.5 2545.4 2545.5 8.4586-3 1.0573-2 28.970 28.970 0.3120 0.3120 1.2819 1.2819 783.7 783.7
CO 0.0 CO2 0.0 H2O 0.0 NO 0.0 NO2 0.0 N2 0.7 O 0.0 OH 0.0	00914 0.00914 0.00914 00001 0.00001 0.00000 04200 0.04200 0.04200 03966 0.03968 0.03969 00224 0.00224 0.00224 00000 0.00001 0.00001 64420 0.76421 0.76421 00002 0.00001 0.00001 00020 0.00017 0.00016 4254 0.14255 0.14255	0.00000 0.04200 0.03969 0.03970 0.00224 0.00001 0.76421 0.00001 0.00001 0.00001 0.00001 0.00001	0.00000 0.00 0.04200 0.04 0.03970 0.03 0.00224 0.00 0.00001 0.00 0.76421 0.76	0000 0.0000 0.00000 10200 0.04200 0.04201 1971 0.03972 0.03972 10224 0.00224 0.00224 0.001 0.00002 0.00002 1422 0.76422 0.76422 0.001 0.0000 0.00000 1011 0.00010 0.00009	0.00914 0.00914 0.00000 0.00000 0.04201 0.04201 0.03972 0.03973 0.00224 0.00225 0.00003 0.00003 0.76422 0.76422 0.00000 0.00000 0.00008 0.00007 0.14255 0.14255	0.00914 0.00914 0.00000 0.00000 0.04201 0.04201 0.03973 0.03973 0.00225 0.00225 0.00004 0.00004 0.76422 0.76422 0.00000 0.00000 0.00007 0.00000 0.14255 0.14254
P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGIIKI OGMMA (S) 1.	.5000 1.0000 1.5000 7.3 14.7 22.0 361.3 1862.2 1862.6 390.6 2892.2 2893.0	29.4 44.1 1862.9 1863.2 2893.4 2894.1 3.7899-4 5.6839-4 28.966 28.967 0.3285 0.3277	4.0000 6.0 58.8 8 1863.4 186 2894.4 289 7.5778-4 1.136 28.367 28, 0.3273 0.3 1.2664 1.2	PHI= 0.4000 0000 10.000 15.000 88.2 147.0 220.4 83.7 1864.0 1864.2 94.9 2895.5 2895.8 5-3 1.8939-3 2.8407-3 9.968 28.968 28.969 267 0.3260 0.3256 668 1.2673 1.2676 23.2 823.4 823.6	20,000 30,000 293.9 440.9 1864.3 1864.5 2836.0 2896.3 3,7873-3 5,6806-3 28,969 28,969 0,3253 0,3250 1,2678 1,2681 823.6 823.8	40.000 50.000 587.8 734.8 1864.6 1864.6 2896.5 2896.6 7.5738-3 9.4670-3 28.970 28.970 0.3248 0.3246 1.2683 1.2684 823.8 823.9
CO 0.0 CO2 0.0 H2 0.0 H20 0.0 NO 0.0 NO2 0.0 N2 0.7 O 0.0 OH 0.0	00907 0.00908 0.00908 00008 0.00006 0.00005 05544 0.05547 0.05548 00002 0.00001 0.00001 05226 0.05233 0.05238 00402 0.00403 0.00404 00402 0.75813 0.75815 00010 0.00007 0.00001 000075 0.00064 0.12017	0.00004 0.00004 0.05549 0.05550 0.00001 0.00001 0.05238 0.05241 0.00404 0.00405 0.00001 0.00001 0.75816 0.75818 0.00005 0.00004	0.00003 0.00 0.05550 0.05 0.00001 0.00 0.05243 0.00 0.00405 0.00 0.00001 0.00 0.75818 0.75 0.00004 0.00	0003 0.0002 0.00002 5551 0.05552 0.05552 0001 0.00000 0.00000 5245 0.05248 0.05250 0405 0.00406 0.00406 0405 0.00002 0.00002 05820 0.75821 0.75822 0003 0.00002 0.00002 00041 0.00036 0.00033	0.00908 0.00908 0.00001 0.00001 0.05552 0.05553 0.00000 0.00000 0.05251 0.05263 0.00406 0.00003 0.75822 0.75823 0.00002 0.00001 0.00031 0.00028 0.12023 0.12024	0.00908 0.00908 0.00001 0.00001 0.05553 0.05553 0.00000 0.00000 0.05254 0.05255 0.00406 0.00406 0.00004 0.00005 0.75823 0.75823 0.00001 0.00001 0.00024 0.12023

P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S)	0/F= 1 0.5000 7.3 2547.5 4125.8 6781-5 1 27.920 0.8447 1.1427 931.1	1.0000 14.7 2586.7 4196.3	F/A= 0. 1.5000 22.0 2609.0 4236.4 1.9655-4 28.052 0.7556 1.1511 943.5	2.0000 29.4 2624.5 4264.3	PERCENT F 3.0000 44.1 2645.8 4302.8 3.8871-4 28.131 0.7060 1.1567 951.1	4.0000 58.8 2660.7 4329.5	6.0000 88.2 2681.0 4366.1	HI = 1.050 10.000 147.0 2705.7 4410.5 1.2728-3 28.258 0.6302 1.1668 963.8	15.000 220.4 2724.4 4444.3	20,000 293,9 2737,3 4467,4 2,5221-3 28,325 0,5920 1,1728 970,7	30.000 440.9 2754.7 4498.7 3.7642-3 28.362 0.5713 1.1764 974.7	40.000 587.8 2766.5 4520.0 5.0018-3 28.387 0.5573 1.1790 977.4	50.000 734.8 2775.4 4536.0 6.2363-3 28.405 0.5469 1.1810 979.5
CO 0.00000000000000000000000000000000000	.04848 .08577 .00433 .00000 .00997 .11024 .00626 .69927 .00299	0.00841 0.04584 0.08882 0.00345 0.00000 0.00912 0.11231 0.00631 0.70136 0.00239 0.00239 0.00991 0.01206	0.00843 0.04425 0.09064 0.00300 0.00000 0.00864 0.11348 0.00630 0.70257 0.00268 0.00942 0.01118	0.00844 0.0431 0.09194 0.00271 0.00000 0.00831 0.11429 0.00628 0.70342 0.00188 0.00907 0.01056	0.00845 0.04148 0.09379 0.00234 0.00000 0.00785 0.11540 0.00622 0.70460 0.00162 0.00856 0.00970	0.00846 0.04032 7.09510 0.00211 0.00000 0.00753 0.11616 0.00617 0.70542 0.00145 0.00819 0.00909	0.00847 0.03869 0.09694 0.000181 0.00001 0.00710 0.11720 0.00607 0.70656 0.00123 0.00767 0.00826	0.00849 0.03665 0.09923 0.00148 0.00001 0.00658 0.11845 0.00590 0.70796 0.00099 0.00702	0.00850 0.03505 0.10102 0.00126 0.00001 0.00619 0.11939 0.00574 0.70904 0.00083 0.00651 0.00647	0.00851 0.03393 0.10227 0.00112 0.00001 0.00593 0.12003 0.00561 0.70979 0.00072 0.00615 0.00594	0.00852 0.03239 0.10399 0.00094 0.00057 0.12089 0.00540 0.71082 0.00059 0.00565 0.00523	0.00853 0.03133 0.10517 0.00083 0.00001 0.00533 0.12147 0.00524 0.71153 0.00052 0.00530 0.00475	0.00853 0.03053 0.10606 0.00076 0.00001 0.00516 0.12190 0.00510 0.71206 0.00046 0.00046 0.00440
P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGIIKI GAMMA (S)	0/F= 1 0.5000 7.3 2554.5 4138.4 5240-5 1 27.770 0.8387 1.1439 935.3	1.0000 14.7 2593.5 4208.6	F/A= 0. 1.5c30 22.0 2615.6 4248.4 1.9499-4 27.900 0.7439 1.1531 948.0	2.0000 29.4 2630.9 4275.9	PERCENT F 3.0000 44.1 2651.9 4313.7 3.8570-4 27.977 0.6905 1.1593 955.9	4.0000 58.8 2666.3 4339.7	6.0000 88.2 2686.0 4375.2	PHI= 1,100 10,000 147.0 2709.7 4417.7 1,2637-3 28,098 0,6077 1,1711 969.0	15.000 220.4 2727.3 4449.5	20.000 233.9 2739.3 4471.0 2.5056-3 28.160 0.5654 1.1785 976.3	30.000 440.9 2755.2 4499.7 3.7411-3 28.193 0.5423 1.1830 980.4	40.000 587.8 2765.8 4518.8 4.9728-3 28.215 0.5268 1.1863 983.3	50.000 734.8 2773.7 4532.9 6.2019-3 28.231 0.5151 1.1890 985.5
CO 0. CO2 0. H 0. H2 0. H20 0. N0 0. N2 0. OH 0. OH 0.	.05630 .08313 .00493 .01219 .11287 .00546 .69369 .00267	0.00834 0.05390 0.05396 0.08596 0.00395 0.11505 0.00541 0.69579 0.00210 0.00944 0.00874	0.00835 0.05246 0.08763 0.00345 0.01083 0.11628 0.00534 0.69700 0.00181 0.00892 0.00793	0.00836 0.05142 0.08833 0.00313 0.01049 0.11713 0.00527 0.69785 0.00161 0.00854 0.00737	0.0083e 0.04997 0.09051 0.00271 0.01002 0.11828 0.00516 0.69902 0.00137 0.00800 0.00659	0.00839 0.04894 0.09169 0.00245 0.00970 0.11908 0.00506 0.69983 0.00121 0.00761 0.00605	0.00840 0.04749 0.09334 0.00211 0.00927 0.12016 0.00489 0.70096 0.00101 0.00706 0.00532	0.00841 0.04572 0.09537 0.00173 0.00875 0.12145 0.00464 0.70233 0.00079 0.00636 0.00445	0.00842 0.04435 0.09692 0.00148 0.00837 0.12241 0.00441 0.70337 0.00064 0.00582 0.00382	0.00843 0.04341 0.09798 0.00132 0.00811 0.12305 0.00423 0.70408 0.00055 0.00544 0.00339	0.00844 0.04215 0.09941 0.00112 0.00777 0.12391 0.00396 0.70504 0.00044 0.00491 0.00284	0.00845 0.04129 0.10038 0.00099 0.00755 0.12448 0.00376 0.70569 0.00037 0.00455 0.00248	0.00845 0.04066 0.10109 0.00090 0.00739 0.12490 0.00360 0.70618 0.00032 0.00428 0.00222

P, ATM 0.51 P, PS1A T, DEG K 158' T, DEG F 240' RHO, G/CC 1.110' M, MOL HT 28.5' CP, CAL/IGIIKI 0.3 GAMMA ISI 1.2'	000 1.0000 1.50 7.3 14.7 22 9.8 1589.9 1590 2.0 2402.2 2402 4-4 2.2207-4 3.3309 972 28.972 28.9 162 0.3159 0.31	00 2.0000 3.000 .0 29.4 44. .0 1590.0 1590. .3 2402.4 2402. -4 4.4411-4 6.6615- 72 28.972 26.97 58 0.3157 0.315 78 1.2778 1.278	1 58.8 1 1590.1 4 2402.5 4 8.8818-4 1 2 28.972 5 0.3155 0 1.2780	6.0000 10.000 88.2 147.0 1590.1 1590.2 2402.6 2402.6	15.000 20.0 220.4 293 1590.2 1590 2402.7 2402	.9 440.9 .2 1590.3 .7 2402.8 .3 6.6609-3 73 28.973 51 0.3151 33 1.2784	40,000 50,000 587.8 734.8 1590.3 1590.3 2402.8 2402.8 8.8811-3 1,1101-2 28,973 28,973 0,3150 0,3150 1,2784 1,2784 763.8 763.8
MOLE FRACTIONS AR C0 0.001 C02 0.061 H20 0.062 N0 0.002 N2 0.752 0 0.001 OH 0.001 O2 0.101	001 0.0000 0.000 889 0.06990 0.068 534 0.06535 0.065 135 0.00135 0.001 000 0.00000 0.000 465 0.75465 0.754 001 0.00000 0.000 013 0.00011 0.000	00 0.00000 0.0000 00 0.06590 0.0659 00 0.06536 0.0653 00 0.0135 0.013 00 0.00001 0.0000 05 0.75465 0.7546 00 0.00000 0.0000 10 0.00009 0.0000	0 0.00000 0 0 0.06890 0 7 0.06537 0 5 0.00135 0 0 0.00001 0 6 0.75466 0 0 0.00000 0	0.00902 0.00902 0.00000 0.00000 0.06890 0.06890 0.06537 0.06538 0.00135 0.00135 0.00001 0.00001 0.75466 0.75466 0.00000 0.00000 0.00007 0.00000 0.10061 0.10061	0.00902 0.009 0.00000 0.000 0.06890 0.065 0.06538 0.065 0.00135 0.001 0.00001 0.000 0.75466 0.754 0.00000 0.000 0.00006 0.000 0.10061 0.100	00 0.00000 00 0.06890 00 0.06539 00 0.00135 00 0.00002 06 0.75466 00 0.00000 05 0.00005	0.00902 0.00902 0.00000 0.00000 0.06890 0.06890 0.06539 0.06539 0.00135 0.00135 0.00002 0.00003 0.75466 0.75466 0.00000 0.00000 0.00005 0.00004 0.10061 0.10060
P, ATM 0.5! P, FSIA T, DEG K 178! T, DEG F 274! RHO, G/CC 9.914 M, MOL HT 28.5 CP, CAL/IGI(K) 0.3. GAMMA (5) 1.2!	000 1.0000 1.50 7.3 14.7 22 0.5 1781.1 1781 5.2 2746.2 2746 1-5 1.9822-4 2.9730 969 28.970 28.9	.0 29.4 44. .3 1781.5 1781. .7 2747.0 2747. -4 3.9636-4 5.9447- 71 28.971 28.97 00 0.3296 0.329 35 1.2638 1.264	0 4.0000 1 58.8 7 1781.9 4 2747.9 4 7.9258-4 1 2 28.972 0 0.3287 2 1.2645	6,0000 10,000 88.2 147.0 1782.1 1782.3 2748.0 2748.4	15.000 20.0 220.4 293 1782.4 1782 2748.6 2748	.9 440.9 .5 1782.6 .7 2748.9 .3 5.9424-3 73 28.973 73 0.3271 .55 1.2657	40.000 50.000 587.8 734.8 1782.6 1782.7 2749.0 2749.1 7.9229-3 9.9034-3 28.974 28.974 0.3269 0.3268 1.2658 1.2659 804.7 804.7
MOLE FRACTIONS AR 0.00 C0 0.00 C02 0.08 H2 0.00 H20 0.07 N0 0.00 N02 0.00 N2 0.74 0 0.00 OH 0.00 OH 0.00	007 0.0005 0.000 200 0.08203 0.082 002 0.00001 0.000 769 0.07774 0.077 249 0.00249 0.002 000 0.00000 0.000 905 0.74908 0.749 0004 0.00003 0.000 051 0.00043 0.000	04 0.00003 0.0000 0.08204 0.08204 01 0.08204 0.0820 077 0.07778 0.0778 0.00250 0.0025 00 0.00001 0.0000 09 0.74910 0.7491 0.00002 0.0000 39 0.00037 0.0003	3 0.00002 5 0.08206 1 0.00001 0 0.07781 0 0.00250 1 0.00001 1 0.74912 2 0.00001 1	0.00896 0.00896 0.0002 0.00002 0.08206 0.08207 0.00001 0.00000 0.07783 0.07785 0.00250 0.00250 0.00001 0.00001 0.74913 0.74913 0.00001 0.00001 0.00028 0.00025 0.07920 0.07920	0.00896 0.008 0.00001 0.000 0.08207 0.082 0.00000 0.000 0.07786 0.077 0.00250 0.000 0.74914 0.749 0.00001 0.000 0.00022 0.000 0.07920 0.079	01 0.00001 07 0.08207 00 0.00000 87 0.07788 51 0.00251 02 0.00002 14 0.74915 01 0.00001 21 0.00019	0.00996 0.00896 0.00001 0.00001 0.08208 0.08208 0.00000 0.00000 0.07289 0.07790 0.00251 0.000251 0.00002 0.00003 0.74915 0.74915 0.00000 0.00000 0.00017 0.00016 0.07920 0.07920
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,	0.00.120	0,07,250 0,07,7	.0 0.0 %	

CASE= 3 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2380.5 T, DEG F 3825.1 RHO, G/CC 7.1586-5 M, MOL WT 27.966 CP, CAL/(GI(K) 0.5808 GAMMA (S) 1.1736 SON VEL, M/SEC 911.3	12.7426 F/A= 0 1.0000 1.5000 14.7 22.0 2402.0 2413.1 3863.9 3883.8 1.4212-4 2.1237-4 28.011 28.034 0.5295 0.5029 1.1845 1.1911 919.0 923.3	2.0000 3.000 29.4 44. 2420.2 2429. 3896.6 3912.	4.0000 58.8 2434.9 3923.1 4.5.6214-4 7.28.079 5.0.4495 1.2070	6.0000 88.2 2442.0 3935.9 8.4120-4 1. 28.094 0.4321	= 1.1500 10.000 15.00 147.0 220. 2449.4 2454. 3949.2 3958. 3985-3 2.0943- 28.109 28.11 0.4139 0.402 1.2203 1.225 940.3 943.	293.9 2457.2 3963.3 2.7897-3 28.124 0.3949 1.2285	30.000 440.9 2460.7 3969.6 4.1796-3 28.131 0.3865 1.2325 946.8	40,000 587.8 2462.8 3973.4 5,5688-3 28,136 0,3845 1,5349 940,0	50.000 734.8 2464.3 3976.0 5.9577-3 28.138 0.3781 1.2366 948.9
MOLE FRACTIONS AR 0.00835 C0 0.05230 C02 0.09403 H 0.00222 H20 0.1192 H20 0.00189 N2 0.69817 0 0.00052 OH 0.00052 OH 0.00226	0.05099 0.05031 0.09558 0.09637 0.00171 0.00145 0.01143 0.01119 0.12542 0.12611 0.00165 0.09150 0.69942 0.70007 0.00035 0.00027 0.00353 0.00037	0.01103 0.0106 0.12655 0.1271 0.00139 0.0012 0.70049 0.7010 0.00022 0.0001 0.00286 0.0024	2 0.04898 3 0.09794 9 0.00096 4 0.01072 2 0.12748 3 0.00113 3 0.70137 6 0.00013	0.04856 0 0.09844 0 0.00081 0 0.01058 0 0.12793 0 0.00098 0 0.70181 0 0.00010 0	0.00839 0.0083 0.04812 0.0478 0.09895 0.0992 0.00064 0.0005 0.01043 0.0103 0.12841 0.1287 0.00082 0.0007 0.70227 0.7025 0.00006 0.0000 0.00158 0.0013	4 0.04768 3 0.09948 3 0.00047 4 0.01028 0 0.1289 0 0.00062 7 0.70276 5 0.00004 4 0.00118	0.00840 0.04748 0.09971 0.00039 0.01022 0.12916 0.00052 0.70298 0.70298 0.00002 0.00099	0.00034 0.01018 0.12930 0.00046 0.70312 0.00002	0.00840 0.04729 0.09994 0.00030 0.01016 0.12940 0.00042 0.70321 0.00002 0.00079 0.00008
0455 0 045									
CASE= 3 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2363.6 T, DEG F 3794.7 RHO, G/CC 7.1578-7 M, MOL HT 27.765 CP, CAL/(G IK) 0.5203 GAMMA (S) 1.1882 SON VEL,M/SEC 917.1	12.2117 F/A= 0 1.0000 1.5000 14.7 22.0 2380.5 2388.8 3825.3 3840.2 1.4232-4 2.1286-4 27.800 27.817 0.4761 0.4547 1.2004 1.2072 924.5 928.4	2.0000 3.000 29.4 44. 2394.0 2400. 3849.5 3861.	4.0000 58.8 4.2404.3 3868.1 4.5.6462-4 1.27.849 1.0.4151 0.4151 0.1.2220	6.0000 88.2 2409.1 3876.7 8.4554-4 1. 27.858 0.4033	= 1,2000 10,000 15,00 147,0 220, 2414,0 2417, 3885.5 3891, 4069-3 2.1080- 27,868 27,87 0.3913 0.383 1,2326 1,236 942.2 944.	293.9 24.9.0 3894.6 32.8089-3 527.878 70.3792 1.2385	30.000 440.9 2421.3 3898.6 4.2102-3 27.883 0.3740 1.2412 946.7	40.000 587.8 2422.6 3901.0 5.6110-3 27.886 0.3709 1.2429 947.5	50.000 734.8 2423.5 3902.7 7.0115-3 27.887 0.3688 1.2440 948.1

CASE= 5 0/F= P, ATM 0.5000 P, PSIA 7. T, DEG K 2036.; T, DEG F 3205.; RHO, G/CC 8.6609=E M, MOL HT 28.94 CP, CAL/(GI(K) 0.362: GAMMA (S) 1.2400 SON VEL,M/SEC 852.0	3 14.7 22.0 29.4 3 2039.4 2041.0 2041.5 3 3211.3 3214.0 3215.7 5 1.7299-4 2.5932-4 3.4562-4 8 28.950 28.953 28.955 28.950 0.3552 0.3502 0.3554 0.3522 0.3502 0.12449 1.2469 1.2482	3,0000 4,0000 6,0000 44.1 58.8 88.2 2043.1 2043.8 2044.7 3217.8 3219.2 3220.8 5.1818-4 6,9069-4 1.0356-3 5.28,957 28,959 28,961 0,3477 0,3462 0,3443 1,2497 1,2507 1,2519	PHI= 0.5000 10.000 15.000 20.000 147.0 220.4 293.5 2045.7 2046.4 2046.8 3222.6 3223.8 3224.5 1.7253-3 2.5873-3 3.4491-3 28.963 28.964 28.965 0.3423 0.3410 0.3402 1.2532 1.2541 1.2544 857.9 858.3 858.6	440.9 587.8 734.8 2047.3 2047.7 2047.7 3225.5 3226.1 3226.5 5.1726-3 6.8959-3 8.6190-3 6.28.966 28.967 28.967 28.966 28.967 0.3381 1.2553 1.2557 1.2560
MOLE FRACTIONS AR 0.00901 C0 0.00654 H0 0.00003 H02 0.00001 H2 0.00001 H20 0.06422 N0 0.06597 N02 0.00000 N2 0.75155 0 0.0003 OH 0.0019783	1 0.00039 0.00033 0.00033 8 0.06845 0.06853 0.06853 8 0.00002 0.00001 0.00001 9 0.00000 0.00000 0.00000 0 0.00008 0.00007 0.00004 0 0.00608 0.00007 0.00005 0 0.00609 0.00001 0.00001 0 0.00001 0.00001 0.00001 0 0.75173 0.75160 0.75184 0 0.00028 0.00023 0.00028 0 0.00167 0.00152 0.00142	0 0,0024 0,00020 0,0017 0 0,06863 0,06866 0,06870 0 0,0001 0,00001 0,00001 0 0,00005 0,00004 0,00003 0 0,0005 0,00004 0,00003 0 0,06467 0,06473 0,06479 0 0,0608 0,00609 0,00611 0 0,0001 0,00001 0,00002 0 0,75189 0,75192 0,75196 0 0,00017 0,00014 0,00012 0 0,00130 0,00121 0,00110	0.00901 0.00901 0.0090 0.00013 0.00011 0.0000 0.06875 0.06877 0.00687 0.00000 0.00000 0.0000 0.00001 0.00001 0.0000 0.00003 0.00002 0.0000 0.06487 0.06492 0.0649 0.00612 0.00614 0.00614 0.00002 0.00002 0.0000 0.75201 0.75204 0.7520 0.00009 0.00008 0.0000 0.00097 0.0008 0.0000 0.00979 0.0980 0.0980	8 0,00008 0,00007 0,00006 0,06881 0,06882 0,06883 0,00000 0,00000 0,00000 0,00001 0,00001 0,00001 0,00002 0,00001 0,00001 0,06500 0,06503 0,06505 0,00615 0,00616 0,00616 0,00003 0,00004 0,00004 6 0,75208 0,75209 0,75210 0,00005 0,00005 0,00004 0,00005 0,00005 0,00004
CASE= 5 0/F= P, ATM 0.5000 P, PSIA 7. T, DEG K 2189. T, DEG F 3478.E RHO, G/CC 8.0456-E M, MOL HT 28.891 CP, CAL/(G)(K) 0.4170 GAMMA (S) 1.2138 SON VEL,M/SEC 874.2	3 14.7 22.0 29.4 2196.4 2200.5 2203.1 3 3493.8 3501.1 3505.8 5 1.6040-4 2.4023-4 3.1999-4 1 28.909 28.918 28.92. 28.909 0.3914 0.386. 3 1.2209 1.2247 1.2271	0 3,0000 4,0000 6,0000 44.1 58.8 88.2 2206.3 2208.4 2210.9 3511.7 3515.3 3520.0 4,7939-4 6,3869-4 9,5710-4 8 28.930 28.934 28.940 2 0,3797 0,3756 0,3706 1,2302 1,2322 1,2348	PHI= 0.6000 10.000	440.9 587.8 734.8 2218.1 2219.0 2219.7 3 3532.9 3534.6 3535.7 4.7725-3 6.3611-3 7.9495-3 2 28.955 28.957 28.958 0.3570 0.3554 0.3542 1.2422 1.2431 1.2438
MOLE FRACTIONS AR CO 0.0089; CO2 0.0796; H 0.00016 H2 0.0004 H20 0.0753; NO 0.00750 NO2 0.00000 N2 0.74446 O 0.00000	8 0.00169 0.00142 0.00126 2 0.08022 0.08051 0.08065 5 0.0010 0.00007 0.00006 0 0.00000 0.00000 0.00001 1 0.00030 0.00026 0.00026 4 0.07576 0.07598 0.07612 0 0.00001 0.00001 0.00001 0 0.00001 0.00001 0.00001	0 0.00105 0.00093 0.00077 0.08091 0.08105 0.08122 0.00005 0.00004 0.00003 0.00001 0.00001 0.00001 0.00019 0.00017 0.00014 0.00752 0.07643 0.07658 0.00792 0.00795 0.00800 0.00001 0.00001 0.00001	0.00895 0.00895 0.0089 0.00061 0.00050 0.0004 0.08140 0.08151 0.0805 0.00002 0.00001 0.0000 0.00001 0.00009 0.0000 0.07676 0.07688 0.0769 0.0005 0.00808 0.0081 0.0005 0.0002 0.0000 0.74566 0.74574 0.7457	0.0036 0.0032 0.0029 0.0029 0.00167 0.0017 0.0016 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.00016 0.0005 0.07706 0.07713 0.0718 0.00813 0.00814 0.00816 0.00816 0.00816 0.00004 0.000004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.00004 0.0

```
0/F= 12.7426
                                 F/A= 0.07848
                                                PERCENT FUEL= 7.2766
                                                                        PHI= 1.1500
                0.5000
P. ATM
                        1.0000
                                 1.5000
                                       2.0000
                                                  3.0000
                                                           4.0000 6.0000 10.000 15.000
                                                                                             20,000
                                                                                                      30,000
                                                                                                              40 000
                                                                                                                       50.000
P. PSIA
                 7.3
                          14.7
                                   22.0
                                           29.4
                                                    44.1
                                                            58.8
                                                                     88.2
                                                                            147.0
                                                                                     220.4
                                                                                              293.9
                                                                                                      440.9
                                                                                                               587.8
                                                                                                                       734.8
T, DEG K
                2556.9
                        2594.9
                                 2616.2
                                         2630.8
                                                  2650.7
                                                           2664.2
                                                                   2682.4
                                                                            2703.7
                                                                                    2719.3
                                                                                             2729.6
                                                                                                      2743.0
                                                                                                              2751.7
                                                                                                                       2758.0
T. DEG F
                4142.7
                        4211.1
                                 4249.4
                                         4275.7
                                                  4311.5
                                                           4335.8
                                                                   4368.6
                                                                            4407.0
                                                                                    4435.1
                                                                                                              4493.3
                                                                                             4453.6
                                                                                                      4477.7
                                                                                                                       4504 6
RHO, G/CC
              6.5803-5 1.3006-4 1.9381-4 2.5726-4 3.8357-4 5.0935-4 7.5988-4 1.2585-3 1.8790-3 2.4978-3 3.7321-3 4.9635-3 6.1930-3
M, MOL WT
                27,612
                        27,692
                                 27.737
                                         27.768
                                                  27.810
                                                           27.838
                                                                   27.876
                                                                           27,920
                                                                                    27,952
                                                                                             27,973
                                                                                                      28,001
                                                                                                              28.018
                                                                                                                       28,031
CP. CAL/(G1(K)
               0.8148
                        0.7494
                                 0.7135
                                         0.6891
                                                           0.6336
                                                                   0.6034
                                                                            0.5676
                                                                                    0.5412
                                                                                             0.5236
                                                                                                      0.5004
                                                  0.6561
                                                                                                              0.4852
                                                                                                                       0.4741
GAMMA (S)
                1.1467
                        1.1532
                                 1.1573
                                         1.1603
                                                           1.1680
                                                                   1,1728
                                                                            1.1792
                                                                                    1.1845
                                                                                             1.1884
                                                                                                      1.1939
                                                                                                              1.1979
                                                                                                                       1.2009
                                                  1.1647
SON VEL, M/SEC
                 939.6
                         947.9
                                  952.7
                                          956.0
                                                   960.7
                                                            964.1
                                                                    968.7
                                                                             974.4
                                                                                     978.8
                                                                                              981.9
                                                                                                       986.1
                                                                                                               989.0
                                                                                                                        991.2
MOLE ERACTIONS
AR
               0.00824
                       0.00826
                                0.00828
                                        0.00829 0.00830 0.00831
                                                                  0.00832 0.00833 0.00834 0.00835
                                                                                                     0.00836
                                                                                                             0.00836
                                                                                                                      0.00837
CO
                                       0.06030 0.05908 0.05823 0.05706
               0.06448 0.06240 0.06117
                                                                          0.05566 0.05462
                                                                                           0.05392
                                                                                                     0.05301
                                                                                                            0.05242 0.05199
C02
              0.07999 0.08249 0.08396 0.08499 0.08643 0.08743 0.08879 0.09043 0.09164 0.09244 0.09350
                                                                                                            0.09418 0.09468
н
               0.00549 0.00441 0.00386
                                       0.00350 0.00304 0.00274 0.00236
                                                                          0.00194 0.00165 0.00147 0.00125
                                                                                                             0.00111
                                                                                                                      0.00101
H2
               0.01478 0.01393 0.01345
                                       0.01312 0.01267 0.01236 0.01195
                                                                          0.01148 0.01113 0.01091
                                                                                                     0.01062
                                                                                                            0.01044 0.01031
                                        0.11950 0.12067 0.12147
                                                                                                     0.12614
H20
               0.11512 0.11737 0.11863
                                                                  0.12255
                                                                          0,12381 0,12474 0,12535
                                                                                                            0.12666
                                                                                                                      0.12704
                       0.00450 0.00438
                                        0,00428 0,00412 0,00398
                                                                          0.00347 0.00321 0.00302
NO
               0.00464
                                                                  0.00377
                                                                                                    0.00275
                                                                                                            0.00255
                                                                                                                      0.00240
N2
               0.68795
                       0.69002 0.69120
                                        0.69202 0.69315 0.69392
                                                                  0.69497
                                                                          0.69623 0.69716 0.69778
                                                                                                     0.69860
                                                                                                             0.69914
                                                                                                                      0.69954
0
               0.00230 0.00176 0.00149
                                        0.00132 0.00109 0.00095
                                                                  0.00077
                                                                          0.00058
                                                                                   0.00046
                                                                                           0.00039
                                                                                                    0.00030
                                                                                                             0.00024
                                                                                                                      0.00021
                                                                          0.00551 0.00495
0H
               0.00966
                       0.00875
                                0.00319
                                        0.00779 0.00721 0.00680
                                                                  0.00623
                                                                                           0.00456
                                                                                                     0.00404
                                                                                                             0.00369
                                                                                                                      0.00343
02
               0.00735
                       0.00609 0.00538 0.00490 0.00425 0.00381 0.00323 0.00256 0.00209 0.00180
                                                                                                     0.00143
                                                                                                            0.00120 0.00104
    CASE = 6
                                                                       PHI= 1.2000
               0/F= 12,2117
                                 F/A= 0.08189
                                                PERCENT FUEL= 7.5691
P. ATM
                0.5000
                        1.0000
                                1,5000 2.0000
                                                  3.0000 4.0000 6.0000 10.000
                                                                                   15,000
                                                                                             20,000
                                                                                                      30.000
                                                                                                              40,000
                                                                                                                       50,000
                         14.7
                                                            58.8
P. PSIA
                7.3
                                 22.0
                                          29.4
                                                   44.1
                                                                   88,2
                                                                            147.0
                                                                                              293.9
                                                                                     220.4
                                                                                                      440.9
                                                                                                               587.8
                                                                                                                       734.8
T, DEG K
                2554.6
                        2590.6
                                         2624.0
                                                           2654.2
                                                                   2670.2
                                                                                             2739.8
                                                                                                      2720.3
                                 2610.5
                                                  2642,1
                                                                            2688.5
                                                                                    2701.5
                                                                                                              2727.0
                                                                                                                       2731.8
T, DEG F
                        4203.5
                                         4263.6
                                                  4296.1
                                                           4317.9
                                                                                                              4448.9
                4138.5
                                 4239.3
                                                                   4346.7
                                                                            4379.6
                                                                                     4402.9
                                                                                             4417,9
                                                                                                      4436.9
                                                                                                                       4457.4
RHO. G/CC
              6,5470-5 1.2947-4 1.9302-4 2.5629-4 3.8233-4 5.0791-4 7.5820-4 1.2568-3 1.8779-3 2.4977-3 3.7349-3 4.9700-3 6.2039-3
M, MOL WT
               27,447
                        27.523
                                27.565
                                        27.593
                                                  27,630
                                                         27,655
                                                                  27,688
                                                                          27,726
                                                                                    27,752
                                                                                             27,769
                                                                                                     27,790
                                                                                                              27.804
                                                                                                                      27,813
                                 0.6691
                                         0.6438
CP. CAL/(G)(K)
              0.7751
                        0,7065
                                                  0.6098
                                                           0,5871
                                                                   0.5569
                                                                            0.5224
                                                                                    0.4977
                                                                                             0.4818
                                                                                                      0.4616
                                                                                                              0.4488
                                                                                                                       0.4398
              1.1512
GAMMA (S)
                        1.1590
                                 1.1639
                                         1.1675
                                                  1.1729
                                                           1.1768
                                                                   1,1826
                                                                            1.1901
                                                                                    1.1962
                                                                                             1.2004
                                                                                                      1.2064
                                                                                                              1.2104
                                                                                                                       1.2134
SON VEL.M/SEC
                943.8
                         952.4
                                  957.3
                                          960.8
                                                   965.7
                                                            969.1
                                                                    973.8
                                                                             979.5
                                                                                     983.9
                                                                                              986.9
                                                                                                       990.9
                                                                                                               993.5
                                                                                                                        995.4
MOLE FRACTIONS
AR
               0.00817 0.00819 0.00820 0.00821 0.00822 0.00823 0.00824 0.00825 0.00826 0.00826 0.00827 0.00827 0.00827
CO
               0.07297 0.07128 0.07030
                                        0.06962 0.06868 0.06804
                                                                  0.06718 0.06619 0.06548
                                                                                           0.06503
                                                                                                    0.06445
                                                                                                            0.06408
                                                                                                    0.08679
002
               0.07640 0.07850 0.07971 0.08055 0.08169 0.08246 0.08350 0.08470 0.08555 0.08610
                                                                                                            0.08723 0.08754
                                                                  0.00254 0.00208 0.00177 0.00157
H
               0.00597 0.00479 0.00418 0.00379 0.00328 0.00296
                                                                                                     0.00133
                                                                                                            0.00117 0.00106
H2
               0.01781
                       0.01701
                                0.01656
                                        0.01626
                                                0.01586
                                                         0.01559
                                                                  0.01524
                                                                          0.01484 0.01457 0.01439
                                                                                                     0.01417
                                                                                                             0.01404 0.01395
H20
               0.11694
                       0.11921
                                0.12046
                                        0.12131
                                                0.12246
                                                         0.12323
                                                                  0.12426
                                                                          0.12543 0.12627 0.12681
                                                                                                     0.12750
                                                                                                            0.12794 0.12825
NO
               0.00384
                       0.00363
                                0.00348
                                        0.00335
                                                 0.00316
                                                         0.00301
                                                                  0.00278
                                                                          0.00248
                                                                                   0.00224 0.00207
                                                                                                     0.00183
                                                                                                            0.00166
                                                                                                                      0.00154
N2
               0.68206
                       0.68405
                                0.68517
                                        0.68593
                                                 0,68696
                                                         0.68766
                                                                  0.68859
                                                                           0.68968
                                                                                   0.69046 0.69096
                                                                                                     0.69161
                                                                                                             0.69203 0.69233
               0.00189
                       0.00141
                                0.00117 0.00101
                                                 0.00082 0.00070
                                                                  0.00055
                                                                          0.00040
                                                                                   0.00031 0.00025
0
                                                                                                    0.00019
                                                                                                            0.00015 0.00013
OH
               0.00883
                       0.00787
                                0.00728
                                        0.00686 0.00627 0.00585 0.00527 0.00456 0.00403 0.00366 0.00319
                                                                                                            0.00287 0.00264
02
               0.00511
                       0.00405 0.00348
                                       0,00309 0.00259 0.00226 0.00184 0.00138 0.00108 0.00090 0.00068 0.00055 0.00047
```

CASE= 2 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	9.07F= 0.5000 7.3 1955.9 3061.0 9.0204-5 28.955 0.3583 1.2424 835.3	20.9343 1.0000 14.7 1958.2 3065.1 1.8023-4 28.960 0.3527 1.2458 836.9	F/A= 0 1.5000 22.0 1959.3 3067.1 2.7021-4 28.962 0.3501 1.2474 837.6	2.0000 29.4 1960.0 3068.3	PERCENT F 3.0000 44.1 1960.8 3069.8 5.4006-4 28.965 0.3465 1.2497 838.7	FUEL = 4 4.0000 58.8 1961.4 3070.8 7.1991-4 28.966 0.3453 1.2505 839.1	.5591 F 6.0000 88.2 1962.0 3071.9 1.0795-3 28.96-7 0.3438 1.2515 839.5	PHI= 0.700 10.000 147.0 1962.7 3073.2 1.7987-3 28.969 0.3423 1.2525 840.0	15.000 220.4 1963.2 3074.1 2.6975-3 28.970 0.3412 1.2532 840.3	20.000 293.9 1963.5 3074.6 3.5962-3 28.971 0.3406 1.2537 840.5	30.000 440.9 1963.9 3075.3 5.3934-3 28.971 0.3398 1.2542 840.8	40.000 587.8 1964.1 3075.7 7.1905-3 28.972 0.3393 1.2545 840.9	50.000 734.8 1964.3 3076.0 8.9875-3 28.972 0.3389 1.2548 841.0
MOLE FRACTIONS AR CO CO2 H H2 H20 N0 N02 N02 N2 O OH	0.00889 0.0050 0.09454 0.00002 0.00011 0.08953 0.00367 0.00000 0.74321 0.00016 0.00137 0.05801	0.00890 0.00036 0.09469 0.00001 0.00008 0.08968 0.00369 0.00000 0.74332 0.00012 0.00116 0.05799	0.00890 0.00030 0.09476 7.00001 0.00006 0.08975 0.09371 0.00000 0.74337 0.00010 0.00106 0.05799	0.00890 0.00126 0.09480 0.00001 0.00006 0.08380 0.00371 0.00000 0.74341 0.00008 0.05799	0.00890 0.00021 0.09485 0.00000 0.0005 0.08986 0.00372 0.00001 0.74345 0.00007 0.00090 0.05799	0.00890 0.00019 0.09488 0.60000 0.00004 0.08990 0.00373 0.00001 0.74347 0.00006 0.00084 0.05799	0.00890 0.00015 0.09492 0.00003 0.08995 0.00373 0.00001 0.74350 0.00005 0.00076 0.05799	0.00890 0.00012 0.09496 0.00000 0.00003 0.09001 0.00374 0.00001 0.74353 0.00004 0.00067 0.05799	0.00890 0.00010 0.09498 0.00000 0.00002 0.09005 0.00375 0.00001 0.74355 0.00003 0.00003	0.00890 0.00008 0.09500 0.00000 0.00002 0.09007 0.00375 0.00002 0.74357 0.00003 0.00057 0.05800	0.00890 0.00007 0.09502 0.00000 0.00001 0.09010 0.00375 0.00002 0.74358 0.00002 0.000051 0.05800	0.00890 0.00006 0.09503 0.00000 0.00001 0.00376 0.00002 0.74359 0.00002 0.00048 0.05800	0.00890 0.00005 0.09504 0.00000 0.00001 0.09014 0.00376 0.00002 0.74360 0.00002 0.00002 0.00045 0.05800
CASE= 2 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IG)(K) GAMMA (S) SON VEL,M/SEC	0.5000 7.3 2109.3 3337.0 8.3515-5 28.905 0.4117 1.2149 858.5	18.3175 1.0000 14.7 2116.3 3349.7 1.6656-4 28.925 0.3956 1.2219 862.2	F/A= 0 1.5000 22.0 2119.8 3355.9 2.4950-4 28.932 0.3878 1.2255 864.0	2.0000 29.4 2121.9 3359.8	PERCENT 6 3.0000 44.1 2124.7 3364.7 4.9802-4 28.942 0.3769 1.2309 866.8	4.0000 58.8 2126.4 3367.7	6.0000 88.2 2128.5 3371.6	PHI= 0.800 10,000 147.0 2130.7 3375.6 1.6561-3 28,955 0.3637 1.2379 870.3	15.000 220.4 2132.2 3378.3 2.4826-3 28.958 0.3605 1.2396 871.2	20.000 233.9 2133.2 3380.0 3.3090-3 28.960 0.3585 1.2408 871.7	30.000 440.9 2134.3 3382.1 4.9612-3 28.963 0.3561 1.2422 872.4	40.000 587.8 2135.1 3383.4 6.6130-3 28.964 0.3546 1.2430 872.8	50.000 734.8 2135.6 3384.3 8.2646-3 28.965 0.3536 1.2436 873.1
MOLE FRACTIONS AR CO CO2 H HO2 H2 H20 N0 NO2 N02 N0	0.00882 0.00237 0.10533 0.00010 0.00000 0.00046 0.10055 0.00443 0.00000 0.73685 0.00041 0.00269 0.03800	0.00883 0.00178 0.10597 0.00006 0.00000 0.00034 0.10091 0.00450 0.00000 0.73720 0.00030 0.00234 0.003777	0.00883 0.00150 0.10628 0.00005 0.00000 0.00029 0.10110 0.00453 0.00000 0.73737 0.00025 0.00214 0.03766	0.00883 0.00132 0.10617 0.00004 0.00005 0.10122 0.00455 0.00000 0.73748 0.00022 0.00201 0.03759	0.10671 0.00003 0.00000 0.00021 0.10137 0.00457 0.00000 0.73761 0.00018	0.00883 0.00097 0.10686 0.00002 0.00000 0.00018 0.10147 0.00459 0.00001 0.73770 0.00016 0.00173 0.03747	0.00884 0.00081 0.10704 0.00002 0.00000 0.00015 0.10159 0.00461 0.00001 0.73780 0.0013 0.00158 0.03742	0.00884 0.0064 0.10723 0.00001 0.00000 0.0012 0.10173 0.00463 0.00001 0.73791 0.000140 0.00140	0.00884 0.00053 0.10735 0.00001 0.00000 0.10183 0.00465 0.00001 0.73798 0.00009 0.00127 0.03734	0.00884 0.0046 0.10743 0.00001 0.00001 0.00009 0.10189 0.00466 0.00007 0.73803 0.00007 0.00119 0.03732	0.00884 0.0038 0.10752 0.00001 0.00001 0.00007 0.10197 0.00467 0.00001 0.73809 0.00108 0.03730	0.00884 0.00033 0.10757 0.00000 0.00001 0.00006 0.10202 0.00468 0.00002 0.73812 0.00005 0.00101 0.03729	0.00884 0.00030 0.10761 0.00000 0.00001 0.00006 0.10206 0.00468 0.00002 0.73814 0.00005 0.00996 0.03728

CASE= 3 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2239.3 T, DEG F 3571.1 RHO, G/CC 7.3151-5 M, MOL WT 26.883 CP, CAL/(G (K) 0.4029 GAMMA (S) 1.2362 SON VEL, M/SEC 925.3	10.4671 F/A= 0.09554 1.0000 1.5000 2.0000 14.7 22.0 29.4 2244.9 2247.5 2249.1 3581.2 3585.8 3588.6 1.4600-4 2.1879-4 2.9156-4 26.895 26.900 26.904 0.3893 0.3893 0.3796 1.2429 1.2460 1.2480 928.7 930.4 931.4	44.1 58.8 2251.0 2252.1 3592.0 3594.0 4.3704-4 5.8247-4 8. 26.908 26.910 0.3752 0.3726	6.0000 10.000 15.000 88.2 147.0 220.4 2253.4 2254.8 2255.7 3596.5 3599.0 3600.5	20,000 30,000 40,000 50,000 293,9 440,9 587.8 734.8 2256,2 2256.8 2257.2 2257.5 3601,5 3602.6 3603.3 3603.7 2,9080-3 4,3610-3 5,8139-3 7,2667-3 26,919 26,920 26,921 26,922 0,3633 0,3619 0,3611 0,3605 1,2572 1,2580 1,2585 1,2589 936,0 936.4 936.7 936.8
MOLE FRACTIONS AR C02 0.10463 C02 0.06389 H 0.00190 H2 0.03719 H20 0.12180 N0 0.00019 N2 0.66148 O 0.00003 OH 0.00003 OH 0.00003	0.00790 0.00790 0.00790 0.10469 0.10472 0.10474 0.06390 0.06390 0.06390 0.03722 0.03723 0.0724 0.12222 0.12242 0.12254 0.00014 0.00012 0.00011 0.66180 0.66194 0.66203 0.00002 0.00001 0.00001 0.00069 0.00058 0.00051 0.00002 0.00001 0.00001	0.10477 0.10478 0 0.06390 0.00072 0 0.00083 0.00072 0 0.07725 0.03726 0 0.12268 0.12277 0 0.00009 0.00008 0 0.66214 0.66220 0 0.00001 0.00000 0 0.00042 0.00037 0	0.00791 0.00791 0.00791 0.10480 0.10482 0.10483 0.06390 0.06390 0.06390 0.00059 0.00046 0.00038 0.03727 0.03728 0.03728 0.12287 0.12298 0.12305 0.00006 0.00005 0.00004 0.66228 0.66236 0.66241 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00791 0.00791 0.00791 0.00791 0.10484 0.10485 0.10485 0.10486 0.06;30 0.06390 0.06390 0.06390 0.05033 0.00027 0.00023 0.00021 0.03729 0.03729 0.03730 0.03730 0.12309 0.12313 0.12316 0.12318 0.00004 0.00003 0.00003 0.00002 0.66244 0.66247 0.66249 0.66251 0.00000 0.00000 0.00000 0.00001 0.00017 0.00014 0.00012 0.00001 0.00000 0.00000 0.00000 0.00000
CASE= 3 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2093.0 T, DEG F 3307.7 RHO, G/CC 7.5750-5 M, MOL HT 26.020 CP, CAL//(G) (K1 0.3789 GAMMA (S) 1.2577 SON VEL,M/SEC 917.2	9.1588 F/A= 0.10919 1.0000 1.5000 2.0000 14.7 22.0 29.4 2095.3 2096.3 2097.0 3311.9 3313.7 3314.8 1.5136-4 2.2695-4 3.0253-4 26.025 26.027 26.028 0.3734 0.3709 0.3694 1.2609 1.2624 1.2633 918.7 919.5 919.9	44.1 58.8 2097.7 2098.2 3316.2 3317.0 4.5366-4 6.0478-4 9. 26.030 26.031 0.3676 0.3666	6.0000 10.000 15.000 88.2 147.0 220.4 2098.7 2099.2 2099.6 3317.9 3318.9 3319.5	20,000 30,000 40,000 50,000 293,9 440.9 587.8 734.8 20,19,8 2100.0 2100.2 2100.3 3319,9 3320.3 3320.6 3320.8 320,220-3 4,5325-3 6,0430-3 7,5535-3 26,034 26,035 26,035 26,036 0,3627 0,3622 0,3618 0,3616 1,2674 1,2678 1,2680 1,2682 921,9 922.1 922.2 922.3
MOLE FRACTIONS AR 0.00755 C0 0.13744 C02 0.04663 H 0.00108 H2 0.06576 H20 0.10886 NH3 0.00000 NO 0.00003 N2 0.63244 OH 0.00021	0.00755 0.00755 0.00755 0.13752 0.13755 0.13757 0.04659 0.04657 0.04656 0.00077 0.00063 0.00055 0.06583 0.06586 0.06588 0.10900 0.10906 0.10910 0.00000 0.00000 0.00000 0.00002 0.00002 0.00001 0.63256 0.63262 0.63265 0.00015 0.00013 0.00011	0.13760 0.13761 0 0.04655 0.04654 0 0.00045 0.00039 0 0.06591 0.06592 0 0.10915 0.10917 0 0.00000 0.00000 0 0.00001 0.00001 0 0.63269 0.63271 0	0.00755 0.00755 0.00755 0.13763 0.13765 0.13766 0.04653 0.04652 0.04652 0.00032 0.00025 0.00020 0.06594 0.06596 0.06597 0.10921 0.10924 0.10926 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.63274 0.63277 0.63279 0.63274 0.63277 0.63279	0.00755 0.00755 0.00756 0.00756 0.13767 0.13767 0.13768 0.13768 0.04651 0.04651 0.04651 0.04651 0.00018 0.00015 0.00013 0.00011 0.06597 0.06598 0.06598 0.06598 0.10927 0.10929 0.10929 0.10930 0.00000 0.00001 0.00001 0.00001 0.00000 0.00001 0.00001 0.00001 0.63280 0.63281 0.63282 0.63283 0.00004 0.00003 0.00003 0.00002

CASE= 5 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2310.2 T, DEG F 3698.6 RHO, G/CC 7.5930-5 M, MOL WT 28.787 CP, CAL//G)(K) 0.5051 GAMMA (S) 1.1860 SON VEL, M/SEC 889.6	20,9343 F/A= 0.04777 1,0000 1,5000 2,0000 14.7 22.0 29.4 2326.6 2335.1 2340.6 3728.2 3743.5 3753.4 1,5097-4 2,2578-4 3,0046-4 28.823 28.842 28.854 0,4733 0,4572 0,4467 1,1946 1,1994 1,2028 895.4 898.6 900.7	3,0000 4,0000 6,0000 44.1 58.8 88.2 2347.7 2352.3 2358.1 3766.2 3774.4 3785.0 4,4957-4 5,9846-4 8,9586-4 28,869 28,879 28,892 0,4334 0,4249 0,4142 1,2073 1,2103 1,2144	147.0 220.4 2364.5 2368.9 2 3796.5 3804.4 3 1.4898-3 2.2313-3 2.9 28.906 28.915 2 0.4026 0.3947 0 1.2190 1.2223 1	0,000 30,000 40,000 50,000 293.9 440.9 587.8 734.8 371.7 2375.2 2377.4 2378.9 309.4 3815.6 3819.6 3822.4 721-3 4.4528-3 5.9326-3 7.4118-3 3.921 28.929 28.937 3.898 0.3836 0.3798 0.3771 2245 1.2273 1.2290 1.2303 913.7 915.3 916.3 917.0
MOLE FRACTIONS AR C0 0.00839 C02 0.08809 H 0.00048 H02 0.00000 H2 0.00111 H20 0.08538 N0 0.08538 N0 0.00848 N02 0.00000 N2 0.73649 0 0.00176 OH 0.00618	0.00885 0.00886 0.00886 0.00511 0.00444 0.00400 0.08949 0.00902 0.00002 0.00003 0.00026 0.00022 0.00001 0.00001 0.00001 0.0087 0.00075 0.0067 0.08613 0.09653 0.08679 0.00074 0.0087 0.00895 0.00000 0.00001 0.00001 0.73729 0.73770 0.73796 0.00137 0.00117 0.00104 0.00549 0.00512 0.00147 0.00549 0.00512 0.00147 0.05633 0.05608 0.05592	0.00344 0.00308 0.00262 0.09131 0.09171 0.09220 0.00017 0.00014 0.00011 0.00058 0.00051 0.00041 0.008714 0.08736 0.08766 0.00907 0.00914 0.00021 0.00001 0.00001 0.00001 0.73830 0.73852 0.73880 0.00088 0.00078 0.00064 0.00451 0.00427 0.00394	0.00212 0.00179 0. 0.09275 0.09311 0. 0.00008 0.00006 0. 0.00001 0.00001 0. 0.00035 0.00029 0. 0.08800 0.08824 0. 0.0934 0.00941 0. 0.00001 0.00002 0. 0.73910 0.73931 0. 0.00053 0.00044 0. 0.00053 0.00044 0.	00888 0.00889 0.00889 0.00889 00158 0.00132 0.00116 0.00105 00334 0.09363 0.09380 0.09392 00001 0.00004 0.00003 0.00003 000026 0.00022 0.00019 0.00017 00026 0.00022 0.00019 0.00017 008840 0.00860 0.08873 0.08882 00946 0.00952 0.00955 0.00958 00002 0.00002 0.00003 0.00003 13944 0.73960 0.73970 0.73977 000397 0.00032 0.00028 0.00026 00307 0.00281 0.00264 0.00251 05510 0.05503 0.05498 0.05495
CASE= 5 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2401.1 T, DEG F 3862.3 RHO, G/CC 7.2641-5 M, MOL WT 28.624 CP, CAL//GJ/K1 0.6180 GAMMA (S) 1.1643 SON VEL,M/SEC 901.1	18.3175 F/A= 0.05459 1.0000 1.5000 2.0000 14.7 22.0 29.4 2426.4 2440.0 2449.2 3907.8 3932.4 3948.9 1.4405-4 2.1509-4 2.8591-4 28.680 28.710 28.730 0.5739 0.5505 0.5348 1.1719 1.1765 1.1798 907.9 911.8 914.5	3,0000 4,0000 6,0000 44.1 58.8 88.2 2461.4 2469.6 2480.2 3970.9 3985.5 4004.7 4,2713-4 5,6799-4 8,4900-4 28,757 28,775 28,798 0,5142 0,5006 0,4828 1,1845 1,1878 1,1924	147.0 220.4 2492.4 2501.0 2 4026.6 4042.2 4 1.4094-3 2.1082-3 2.8 28.825 28.844 2 0.4626 0.4484 0 1.1980 1.2024 1	0.000 30.000 40.000 50.000 293.9 440.9 587.8 734.8 506.7 2513.9 2518.5 2521.8 558.3 4065.2 4073.6 4079.5 558-3 4.1990-3 5.5903-3 6.9804-3 8.856 28.872 28.882 28.889 4.392 0.4274 0.4199 0.4145 2053 1,2093 1,2120 1.2140 933.0 935.7 937.4 938.7
MOLE FRACTIONS AR C0 0.01381 C02 0.09282 H 0.00100 H2 0.00240 H2 0.09436 N0 0.00847 N02 0.00000 N2 0.72754 O 0.00240		0.00865 0.00793 0.00697 0.09847 0.09926 0.10031 0.00046 0.00039 0.00031 0.00001 0.00001 0.00001 0.00142 0.00129 0.00112 0.09704 0.09741 0.09789 0.00919 0.00929 0.00941 0.00001 0.00001 0.00001	0.00587 0.00509 0 0.10151 0.10236 0 0.00023 0.00018 0 0.00001 0.00001 0 0.00093 0.00080 0 0.09846 0.09887 0 0.00956 0.00966 0 0.00001 0.00001 0	00881 0.00881 0.00881 0.00882 00458 0.00392 0.00350 0.00320 10292 0.10363 0.10409 0.10442 00001 0.00002 0.00002 0.00009 00072 0.00061 0.00054 0.0050 00973 0.00981 0.00987 0.00991 00973 0.00981 0.00987 0.00991 00973 0.00082 0.00002 0.00002 73283 0.73319 0.73342 0.73358

CASE= 6 0/F= P, ATM 0.5000 P, PSIA 7.3 I, DEG K 2497.4 I, DEG F 4035.5 RHO, G/CC 6.5198-5 M, MOL HT 26,721 CP, CAL/(G)(K) 0.5690 GAMMA (S) 1.1856 SON VEL,M/SEC 959.8	10.4671 F/A= 0.0 1.0000 1.5000 14.7 22.0 2520.1 2531.6 4076.5 4097.1 1.2344-4 1,9346-4 26.768 26.792 0.5172 0.4919 1.1976 1.2044 968.2 972.8	2.0000 3.0000 29.4 44.1 2538.9 2548.1 4110.2 4126.8	FUEL = 8,7206	PHI= 1.4000 10.000 15.000 147.0 220.4 2568.5 2573.5 4163.6 4172.6 1.2747-3 1.9092-3 26.867 26.877 0.4144 0.4046 1.2313 1.2355 989.3 991.8	4178.0 4184. 2.5431-3 3.8103- 26.883 26.89 0.3987 0.391	9 587.8 734.8 2 2562.4 2584.0 6 4188.6 4191.4 3 5.0769-3 6.3431-3 11 26.895 26.899 0.3873 0.3844 4 1.2435 1.2449
MOLE FRACTIONS AR C.00785 C0 0.10824 C02 0.05926 H 0.00657 H2 0.03536 H20 0.11848 N0 0.00133 N2 0.65693 0 0.00056 0H 0.00465 02 0.00077	0.10804 0.10794 0.05976 0.06000 0.00512 0.00438 0.03514 0.03504 0.12013 0.12097 0.00111 0.00099 0.65819 0.65883 0.00036 0.00027 0.00379 0.00332	0.00788	0.00788 0.00789 0.10777 0.10772 0.06046 0.00600 0.00294 0.00247 0.03487 0.03482 0.12263 0.12318 0.00071 0.00061 0.66009 0.66050 0.00013 0.00009 0.00233 0.00199 0.00018 0.00013	0.00789 0.00790 0.10767 0.10764 0.06075 0.06084 0.00198 0.00165 0.03478 0.3475 0.12375 0.12413 0.00050 0.00042 0.66093 0.66122 0.00066 0.00004 0.00161 0.00135 0.00099 0.00006	0.10762 0.1076 0.06090 0.0609 0.00144 0.0012 0.03473 0.0347 0.12436 0.1246 0.00037 0.0003 0.66140 0.6616 0.0003 0.0000 0.00119 0.0016	0 0.10759 0.10758 6 0.06100 0.06103 0 0.00105 0.00094 2 0.03471 0.03470 4 0.12482 0.12493 11 0.00028 0.00025 11 0.66174 0.66183 2 0.00002 0.00001 0 0.00087 0.00079
CASE= 6 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2384.2 T, DEG F 3831.8 RHO, G/CC 6.6295-5 M, MOL HT 25.940 CP, CAL/IGI(K) 0.4584 CAMMA (S) 1.2222 SON VEL,M/SEC 966.4	9.1588 F/A= 0.1 1.0000 1.5000 2396.1 2401.8 3853.3 3863.5 1.3206-4 1.9771-4 25.964 25.976 0.4332 0.4214 1.2317 1.2366 972.1 975.0	0919 PERCENT F 2.0000 39.04 44.1 2405.3 2409.6 3689.8 3877.6 25.984 25.993 0.4142 0.4054 1.2397 1.2437 976.8 979.1	4.0000 6.0000 58.8 88.2 2412.3 2415.5 3882.4 3888.3	PHI = 1.6000 10.000 15.000 147.0 220.4 2418.9 2421.0 3894.3 3898.1 1.3105-3 1.9644-3 26.012 26.016 0.3872 0.3830 1.2526 1.2548 984.1 985.3	293,9 440, 2422,3 2423, 3900,5 3903, 2.6180-3 3,9250- 26,019 26,037 0,3805 0,377 1,2561 1,257	9 587.8 734.8 2424.8 2425.5 3 3905.0 3906.2 3 5.2316-3 6.5381-3 2 26.024 26.026 5 0.3757 0.3744 7 1.2587 1.2594
MOLE FRACTIONS AR CO 0.14031 CO2 0.04320 H 0.00514 H2 0.06148 H20 0.10982 NH3 0.00000 NO 0.00032 N2 0.63035 O 0.00009 OH 0.00169 O2 0.00007	0.14054 0.14065 0.04315 0.04312 0.00386 0.00324 0.06172 0.06184 0.11059 0.11096 0.00000 0.00000 0.00025 0.00021 0.63098 0.63129	C.00754 0.00754 0.14072 0.14080 0.04310 0.04308 0.06191 0.06201 0.11119 0.11147 0.00000 0.00000 0.00019 0.0001 0.63148 0.63171 0.00003 0.00002 0.00097 0.00081 0.00092 0.00002	0.00754 0.00755 0.14085 0.14092 0.04307 0.04305 0.00209 0.00173 0.06206 0.06214 0.11164 0.11185 0.00000 0.00000 0.00014 0.00012 0.63185 0.3203 0.00002 0.00001 0.00072 0.00060 0.00011 0.00001	0.00755 0.00755 0.14098 0.14103 0.04304 0.04302 0.00136 0.00113 0.06221 0.06226 0.11207 0.11221 0.00000 0.00000 0.00009 0.00008 0.63221 0.63232 0.00001 0.00000 0.00047 0.00039 0.00001 0.00000	0.14105 0.1410 0.04302 0.0430 0.00098 0.0008 0.06229 0.0623 0.11230 0.1124 0.00000 0.0000 0.63239 0.6324 0.00000 0.0000 0.00000 0.0000 0.00034 0.0002	8 0.14110 0.14112 10 0.04301 0.04300 11 0.00070 0.00063 12 0.06234 0.06236 10 0.11246 0.11250 10 0.00001 0.00001 10 0.00005 0.00004 10 0.00005 0.00004 10 0.00005 0.00000 10 0.00000 0.00000 10 0.00005 0.00000

CASE= 2 P, ATM P, PSIA T, DEG K T, DEG K T, DEG CC M, MOL HT CP, CAL/(G)IK) GAMMA (S) SON VEL,M/SEC	0/F= 0.5000 7.3 2173.7 3453.0 8.0913-5 28.864 0.4555 1.1987 866.4	17.2400 1.0000 14.7 2184.7 3472.8 1.6114-4 28.888 0.4317 1.2070 871.2	F/A= 0. 1.5000 22.0 2190.2 3482.7 2.4120-4 28.900 0.4198 1.2115 873.7	2.0000 29.4 2193.8 3489.1	PERCENT F 3.0000 44.1 2198.3 3497.2 4.8093-4 28.917 0.4027 1.2185 877.6	4.0000 58.8 2201.1 3502.3	6.0000 88.2 2204.7 3508.8	HI= 0.850 10.000 147.0 2208.6 3515.7 1.5969-3 28.940 0.3810 1.2284 882.9	0 15,000 220,4 2211,2 3520,4 2,3929-3 28,945 0,3757 1,2311 884,3	20.000 293.9 2212.8 3523.3 3.1886-3 28.949 0.3723 1.2328 885.1	30.000 440.9 2214.8 3526.9 4.7793-3 28.953 0.3682 1.2349 886.2	40,000 587,8 2216,1 3529,2 6,3694-3 28,956 0,3657 1,2362 886,9	50.000 734.8 2216.9 3530.8 7.9591-3 28.957 0.3639 1.2372 887.4
MOLE FRACTIONS AR CO CO2 HO2 H2 H20 N0 N02 N2 O OH	0.00878 0.00450 0.10936 0.00020 0.00000 0.00084 0.10564 0.00450 0.00000 0.73329 0.00055 0.00339 0.02895	0.00879 0.00350 0.11045 0.00013 0.00000 0.00065 0.10616 0.00458 0.00040 0.73385 0.00041 0.00298	0.00879 0.00300 0.11101 0.00010 0.00005 0.10643 0.00462 0.00000 0.73113 0.00035 0.00275 0.02826	0.00879 0.00758 0.11136 0.00008 0.00000 0.00049 0.10661 0.00464 0.00000 0.73432 0.00031 0.00260 0.02812	0.00880 0.00227 0.11180 0.00007 C.00000 0.00041 0.10684 0.000468 0.00026 0.73455 0.00026 0.00239 0.02794	0.00880 0.00201 0.11208 0.00005 0.00000 0.00037 0.10698 0.00470 0.00000 0.73469 0.00023 0.00225 0.002783	0.00880 0.00169 0.11243 0.00004 0.00000 0.00031 0.10717 0.00472 0.00000 0.73487 0.00019 0.00206 0.02770	0.00880 0.00136 0.11280 0.00003 0.00005 0.10738 0.00475 0.00001 0.73507 0.00015 0.00184 0.02756	0.00881 0.00113 0.11305 0.00002 0.00000 0.10753 0.00477 0.00001 0.73520 0.00012 0.000158 0.02747	0.00881 0.00099 0.11320 0.00002 0.00001 0.00018 0.10762 0.000479 0.00001 0.73528 0.00011 0.00157 0.02742	0.00881 0.00082 0.11339 0.00001 0.00015 0.10774 0.00480 0.00001 0.73538 0.00009 0.00143 0.02736	0.00881 0.00072 0.11350 0.00001 0.00001 0.00013 0.10781 0.00081 0.73544 0.00008 0.00134 0.02732	0.00881 0.00065 0.11358 0.00001 0.00001 0.00012 0.10787 0.00482 0.00001 0.73549 0.00007 0.00127 0.002730
CASE= 2 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IG1(K) GAMMA (5) SON VEL,M/SEC	0.5000 7.3 2227.7 3550.1	16.2822 1.0000 14.7 2243.2 3578.1 1.5664-4 28.832 0.4795 1.1916 878.0	F/A= 0. 1.5000 22.0 2251.3 3592.7 2.3425-4 28.850 0.4635 1.1964 881.1	2.0000 29.4 2256.7 3602.3	PERCENT F 3.0000 44.1 2263.6 3614.7 4.6640-4 28.876 0.4395 1.2043 885.9	4.0000 58.8 2268.0 3622.8	6.0000 88.2 2273.8 3633.1	HI= 0.900 10.000 147.0 2280.1 3644.4 1.5453-3 28.912 0.4070 1.2166 893.2	15.000 220.4 2284.4 3652.2	20.000 293.9 2287.2 3657.2 3.0827-3 28.927 0.3930 1.2226 896.5	30.000 440.9 2290.6 3663.4 4.6182-3 28.935 0.3863 1.2257 898.2	40,000 587.8 2292.8 3667.3 6.1528-3 28,939 0.3820 1,2276 899.3	50.000 734.8 2294.3 3670.0 7.6868-3 28.943 0.3791 1.2291 900.0
MOLE FRACTIONS AR CO CO2 H H02 H2 H20 N0 N02 N02 N02 0 OH	0.00873 0.00787 0.11202 0.00035 0.00000 0.00146 0.11040 0.00430 0.00000 0.72935 0.00065 0.00398 0.02090	0.00874 0.00637 0.11365 0.00024 0.00000 0.00116 0.11111 0.00437 0.00000 0.73017 0.00050 0.00353 0.02015	0.00875 0.00559 0.11451 0.00019 0.00000 0.011148 0.00441 0.00000 0.73060 0.00042 0.00328 0.01976	0.00875 0.00537 0.11508 0.00016 0.00000 0.11172 0.00443 0.000443 0.00038 0.0038 0.00311 0.01951	0.00876 0.00439 0.11581 0.00013 0.00000 0.00078 0.11204 0.00446 0.00000 0.73124 0.00032 0.00288 0.01918	0.00876 0.00395 0.11629 0.00011 0.00000 0.00070 0.11225 0.00448 0.00028 0.00272 0.01897	0.00876 0.00339 0.11691 0.00008 0.00000 0.00050 0.11252 0.00450 0.00000 0.73178 0.00024 0.00251 0.01871	0.00877 0.00277 0.11758 0.00006 0.00048 0.11283 0.00452 0.00000 0.73211 0.00019 0.00225 0.01842	0.00877 0.00235 0.11805 0.00005 0.00000 0.00041 0.11304 0.00454 0.00001 0.73234 0.00016 0.00207 0.01822	0.00877 0.00208 0.11834 0.00004 0.00003 0.01318 0.00455 0.00001 0.73249 0.00014 0.00194 0.01810	0.00877 0.00175 0.11870 0.00003 0.00001 0.00030 0.11335 0.00457 0.00001 0.73267 0.00011 0.00177 0.01795	0.00878 0.00154 0.11893 0.00002 0.00001 0.00027 0.11347 0.00458 0.00001 0.73278 0.00010 0.00166 0.01786	0.00878 0.00140 0.11908 0.00002 0.00001 0.00024 0.11355 0.00458 0.00001 0.73286 0.00009 0.00158 0.01780

CASE 3 0/Fe P, ATM 0.5000 P, PS1A 7.3 T, DEG K 1949.5 T, DEG F 3050.2 RHO, G/CC 7.8802-F M, MOL HT 25.21E CP, CAL/(G/IK) 0.371E GAMMA (S) 1.2714 SON VEL,M/SEC 904.1	0 1.0000 1.5000 2.0000 14.7 22.0 29.4 3 1950.9 1951.3 1951.6 5 3051.9 3052.7 3053.1 6 3.57.4 2.3627-4 3.1499-4 8 25.220 25.220 25.221 0.3693 0.3681 0.3674 1.2730 1.2738 1.2742	PERCENT FUEL = 10.9396 3.0000 4.0000 6.000 44.1 58.8 88 1951.9 1952.1 1952 3053.7 3054.0 3054 4.7242-4 6.2984-4 9.4468- 25.222 25.222 25.22 0.3666 0.3662 0.366 1.2748 1.2751 1.275 905.7 905.8 906	2 147.0 220.4 293. 3 1952.5 1952.6 1952. 4 3054.8 3055.1 3055. 4 1.5743-3 2.3613-3 3.1483- 2 25.223 25.223 25.22 0.3650 0.3646 0.364 5.5 1.2758 1.2751 1.275	9 440.9 587.8 734.8 1952.8 1952.9 1953.0 2 3055.4 3055.5 3055.6 3 4.7223-3 6.2962-3 7.8702-3 4 25.224 25.224 25.224 25.224 25.224 25.224 20.3642 0.3640 0.3639 2 1.2764 1.2765 1.2766
MOLE FRACTIONS AR CO 0.1629(CO2 0.3534 H 0.0005(H2 0.09677 H20 0.09172 NH3 0.00000 N2 0.6055(OH 0.00004	0 0.16293 0.16295 0.16.96 1 0.03531 0.03531 0.03530 0 0.00036 0.00029 0.00025 0 0.09682 0.09684 0.09686 2 0.09176 0.09178 0.09179 0 0.00000 0.00000 0.00000 0 0.60555 0.60557 C.60558	0.00723 0.00723 0.007 0.16297 0.16298 0.1629 0.03529 0.07529 0.0352 0.00021 0.00018 0.0001 0.09667 0.09688 0.0968 0.09181 0.09182 0.0918 0.00000 0.00000 0.0000 0.60560 0.60561 0.6056 0.00002 0.00002 0.0000	0.16300 0.16300 0.16300 0.16300 0.03528 0.03528 0.03528 0.03528 0.03528 0.03528 0.03528 0.0352 0.0001 0.0000 0.0000 0.0000 0.00001 0.00001 0.0000 0.00001 0.00001 0.0000 0.2 0.60564 0.60564 0.60564 0.60564 0.60564	0 0.16301 0.16301 0.16301 0.15301 0.03528 0.03528 0.03528 0.00558 0.00569 0.00005 0.00005 0.00005 0.00005 0.00005 0.00002 0.00002 0.00003 0.00005 0.60565 0.60565 0.60565
CASE= 3 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1812.E T, DEG F 2803.3 RHO, G/CC 8.2272-E M, MOL HT 24.476 CP, CAL/(G (K) 0.3697 GAMMA (S) 1.2822 SON VEL,M/SEC 888.7	0 1.9000 1.5000 2.0000 14.7 22.0 29.4 3 1813.2 1813.3 1813.4 2804.0 2804.0 2804.5 5 1.6452-4 2.4676-4 3.2899-4 6 24.477 24.477 24.478 0.3686 0.3681 0.3678 1 1.2832 1.2836 1.2838	PERCENT FUEL= 12,0091 3,0000 4,0000 6,000 44.1 58.8 88. 1813.5 1813.6 1813 2804.7 2804.8 2804 4,9346-4 6,5793-4 9,8685 24,478 24,478 24,478 0,3675 0,3673 0,367 1,2840 1,2842 1,288 889.4 889.4 889.	2 147.0 220.4 293. 7 1813.8 1813.8 1813. 9 2805.1 2805.2 2805. 4 1.6447-3 2.4670-3 3.2633- 8 24.479 24.479 24.47 0 0.3668 0.3666 0.366 3 1.2845 1.2846 1.284	9 440.9 587.6 734.8 1813.9 1814.0 1814.0 3 2805.4 2805.5 2805.5 3 4.9338-3 6.5783-3 8.2229-3 9 24.479 24.480 24.480 0.3664 0.3664 0.3664 7 1.2848 1.2848 1.2848
MOLE FRACTIONS AR 0.00693 C0 0.18376 C02 0.0274 H 0.00020 H2 0.12766 H20 0.07333 NH3 0.00000 N2 0.58064 OH 0.00001	0.18378 0.18378 0.18379 0.02742 0.02742 0.02742 0.02742 0.00014 0.00012 0.00010 0.12770 0.12771 0.12771 5 0.07336 0.07337 0.07337 0.00000 0.00000 0.00000 0.58066 0.58067 0.58067	0.00693 0.00693 0.0069 0.18379 0.18379 0.1837 0.02742 0.02741 0.027 0.00008 0.00007 0.0000 0.12772 0.12772 0.1277 0.07337 0.07338 0.0733 0.00000 0.00000 0.0000 0.58068 0.58068 0.5806 0.00000 0.00000 0.0000	00 0.18380 0.18380 0.1838 11 0.02741 0.02741 0.02741 10 0.00005 0.00004 0.0000 12 0.12772 0.12772 0.1277 18 0.07338 0.07338 0.0733 10 0.00001 0.00002 0.0000 19 0.58069 0.58069 0.5807	0 0.18380 0.18380 0.18380 0.18380 0.02741 0.02742 0.02742 3 0.00003 0.00002 0.00002 2 0.12771 0.12769 0.12768 8 0.07339 0.07339 0.07339 2 0.00003 0.00004 0.00005 0 0.58070 0.58070 0.58070

P, ATM 0.50	.3 14.7 .0 2465.0 .0 3977.4 -5 1.4133-4 2 23 28.587 56 0.6279 66 1.1634	F/A= 0.05800 1.5000 2.0000 22.0 29.4 2481.1 2492.0 4006.3 4026.0 1.1088-4 2.8017-4 28.622 28.646 0.6021 0.5848 1.1676 1.1706 917.3 920.2	44.1 5 2506.7 251 4052.4 407 4.1826-4 5.559 28.678 28. 0.5616 0.5 1.1749 1.1	000 6.0000 8.8 88.2 6.7 2530.0 0.3 4094.2 10-4 8.3032-4 700 28.729	HI= 0.8500 10.000 15.000 147.0 256.4 42545.4 2556.4 4122.0 4142.2 1.3771-3 2.0583-3 28.763 28.788 0.5017 0.4845 1.1879 1.1923 934.9 938.3	2.7380-3 28.804 0.4731 1,1953	30.000 40.000 440.9 587.8 2573.7 2580.0 4173.0 4184.3 4.0946-3 5.4488-3 28.825 28.839 0.4583 0.4486 1.1996 1.2025 943.7 945.8	50,000 734.8 2584.6 4192.6 6.8012-3 28,849 0.4416 1.2047 947.3
MOLE FRACTIONS AR C0 0.018 C02 0.093 H 0.001 H02 0.000 H2 0.003 N00 0.098 N0 0.008 N02 0.000 N7 0.722 0.002 OH 0.008 02 0.003	75 0.01631 7 0.09645 7 0.09645 7 0.09011 7 0.00011 7 0.00011 7 0.00011 7 0.00011 7 0.00011 7 0.72422 6 6 0.00216 9 0.00021	0.00871 0.00871 0.01492 0.01396 0.09798 0.09504 0.00001 0.00001 0.00001 0.00001 0.00252 0.00233 0.10048 0.10097 0.00861 0.00871 0.00000 0.00000 0.72364 0.72560 0.00189 0.00171 0.00779 0.00749 0.03110 0.03063	0.00872 0.00 0.01263 0.01 0.10049 0.10 0.00068 0.00 0.07001 0.00 0.0208 0.00 0.10162 0.10 0.00885 0.00 0.72636 0.72 0.00149 0.00 0.02707 0.00 0.02999 0.02	173 0.01050 1149 0.10283 1059 0.00048 1001 0.00001 1191 0.00169 1207 0.10266 1894 0.00906 1001 0.00001 1687 0.72755 1134 0.00116 1678 0.00637	0.00875 0.00876 0.00905 0.00796 0.10441 0.10558 0.00001 0.00029 0.00001 0.00012 0.00013 0.00129 0.10335 0.1038 0.00919 0.00928 0.00001 0.00001 0.72835 0.72893 0.00095 0.00081 0.00546 0.00546	0.00727 0.10635 0.00025 0.00001 0.00113 0.10420 0.00934 0.00001 0.72931 0.00073 0.00519	0.00877 0.00877 0.00634 0.00573 0.10737 0.10803 0.00020 0.00016 0.00001 0.00002 0.00098 0.00088 0.10464 0.10494 0.00942 0.00947 0.00001 0.00002 0.72981 0.73014 0.00062 0.00455 0.00482 0.00456 0.00482 0.00456	0.00878 0.00529 0.10851 0.00014 0.00002 0.00081 0.10515 0.00951 0.00002 0.73037 0.00050 0.00437 0.02654
P, ATM 0.50 P, PSIA 7 T, DEG K 2464 T, DEG F 3976 RHO, G/CC 7.0240	.3 14.7 .5 2496.8 .4 4034.5	F/A= 0.06142 1.5000 2.0000 22.0 29.4 2514.8 2527.3 4067.0 4089.4	44.1 5 2544.2 255 4119.8 414	0000 6.0000 68.8 88.2 65.7 2571.4 0.6 4168.8	HI= 0.9000 10.000 15.000 147.0 220.4 2589.9 2603.7 4202.2 4227.0	293.9 2613.0 4243.6	30.000 40.000 440.9 587.8 2625.3 2633.4 4265.8 4280.4	50.000 734.8 2639.4 4291.3
M, MOL WT 28.4 CP, CAL/(G)(K) 0.72 GAMMA (S) 1.15 SON VEL,M/SEC 911	09 28.480 82 0.6784 09 1.1570	2.0730-4 2.7531-4 28.519 28.546 0.6513 0.6330 1.1607 1.1633 922.5 925.4	28.583 28. 0.6085 0.5 1.1672 1.1	609 28.643 919 0.5697 700 1.1739 92.2 936.1	28.684 28.714 0.5437 0.5244 1.1790 1.1831 940.8 944.4	2,6802-3 28,734 0,5116 1,1860 946.9	4.0053-3 5.3271-3 28.761 28.778 0.4945 0.4832 1.1901 1.1930 950.4 952.7	

```
CASE= 6 0/F= 8.1411
                                F/A= 0.12283 PERCENT FUEL= 10.9396
                                                                      PHI= 1.8000
P, ATM 0.5000
                       1.0000
                               1.5000
                                        2.0000
                                                3.0000
                                                        4.0000
                                                                 6.0000
                                                                         10,000 15,000
                                                                                          20,000
                                                                                                  30,000
                                                                                                          40.000
                                                                                                                  50,000
P, PSIA
                                                  44.1
                                                                  88.2
                                                                                          293,9
             7.3
                                 22.0
                                          29.4
                                                          58.8
                                                                          147.0
                                                                                  220.4
                                                                                                   440.9
                                                                                                           587.8
                         14.7
               2252.6
T. DEG K
                        2258.9
                                2261.8
                                        2263.6
                                                2265.7
                                                         2267,1
                                                                 2268.6
                                                                         2270.3
                                                                                 2271.3
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                                                                                                  2272.7
                                                                                                          2273.1
                                                                                                                  2273.4
T, DEG F
             3595.0
                        3606.3
                                        3614.8
                                                3618.6
                                                         3621.0
                                                                 3623.9
                                                                         3626.8
                                                                                 3628.6
                                                                                          3629.7
                                3611.5
                                                                                                  3631.1
                                                                                                          3631.9
                                                                                                                  3632.4
RHO, G/CC
             6.8102-5 1.3590-4 2.0363-4 2.7133-4 4.0668-4 5.4198-4 8.1252-4 1.3534-3 2.0294-3 2.7052-3 4.0568-3 5.4082-3 6.7595-3
M, MOL WT
                                                                                 25.215
               25,176
                        25,189
                                25,195
                                        25,199
                                                25.203
                                                        25.206
                                                                 25,209
                                                                         25.213
                                                                                          25.216
                                                                                                  25.218
                                                                                                          25,219
CP, CAL/(GI(K) 0.4168
                                0.3972
                                        0.3934
                                                0.3889
                                                        0.3861
                                                                 0.3828
                                                                                 0.3774
                        0.4034
                                                                         0.3795
                                                                                          0.3761
                                                                                                  0.3746
                                                                                                          0.3736
                                                                                                                  0.3730
GAMMA (S)
              1.2465
                        1.2529
                                1.2561
                                        1.2581
                                                1.2605
                                                         1.2620
                                                                 1.2638
                                                                         1.2657
                                                                                 1.2669
                                                                                          1.2677
                                                                                                  1.2686
                                                                                                          1.2691
                                                                                                                  1.2695
SON VEL.M/SEC
              963.0
                         966.5
                                 968.3
                                         969.3
                                                 970.6
                                                         971.4
                                                                 972.4
                                                                          973.4
                                                                                  974.1
                                                                                           974.5
                                                                                                   975.0
                                                                                                           975.2
MOLE FRACTIONS
AR
              0.00722 0.00722
                               0.00722
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                                              0.00722 0.00723
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CO
              0.16625
                     0.16643
                               0.16651
                                       0.16656
                                               0.16663 0.16666
                                                               0.16671 0.16676
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                                                                                        0.16680
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                                                                                                        0.16684 0.16684
            0.03166 0.03158
                                       0.03152
                                               0.03150 0.03148
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C02
                               0.03154
                                                                0.03146 0.03144
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                               0.00195
                                               0,00141 0,60123
                                                               0.00101 0.00079
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             0.00321 0.00235
                                       0.60171
                                                                                        0.00057
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                                       0.09246
                                              0.09256 0.09262
                                                               0.09270 0.09277
                                                                                0.09282
             0.09196 0.09225
                               0.09238
                                                                                        0.09285
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            0.09464 0.09494
                              0.09508
                                       0.09517
                                               0.09527 0.09534
                                                               0.09541 0.09549
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                                       G.00004
             0.00007 0.00005
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N2
                              0.60494 0.60503
             0.60448 0.60480
                                               0.60514 0.60521
                                                               0.60529 0.60537
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            0.00051 0.00038
                                               0.00023 0.00020
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                              0.00031 0.00028
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                                                                                                        0.00007 0.00006
              0.00001 0.00000
                               0.00000 0.00000
                                               0.00000 0.00000
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                                                                                                         0.00000
   CASE= 6 0/F= 7.3270
                                F/A= 0.13648 PERCENT FUEL= 12.0091 PHI= 2.0000
CP, CAL/IGI(K) 0.3975
                        0.3901
                                0.3867
                                        0.3847
                                                0.3823
                                                        0.3808
                                                                 0.3791
                                                                         0.3773
                                                                                0.3762
                                                                                          0.3755
                                                                                                  0.3747
                                                                                                          0.3742
                                                                                                                 0.3739
GAMMA (S) 1.2642
SON VEL,M/SEC 954.3
                        1,2684
                                1.2704
                                        1,2716
                                               1,2730
                                                        1,2739
                                                                 1.2750
                                                                         1,2761
                                                                                1,2768
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                                                                                                          1,2780
                                                                                                                1,2782
                         956.5
                                 957.5
                                        958.1
                                                 958.8
                                                         959.3
                                                                  959.8
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AR
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CO
             0.18742 0.18752
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            0.02360 0.02355
0.00172 0.00124
C05
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              0.00014 0.00010 0.00008
                                       0.00007 0.00006 0.00005
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AR 1.000000 0.000000 C 1.000000 0 2.000000 N 2.000000 0.000000 O 2.000000 0.000000	0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	0.000000 0.01285800 0.000000 0.00045600 0.000000 0.75525296 0.000000 0.23143297	0.00 G 0.000 0 0.00 G 0.000 0 0.00 G 0.000 0 0.00 G 0.000 0	0.00000 0.00000
CASE= 0 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG k 2800.3 RHO, G/CC 6.2028-5 M, MOL WT 28.503 CP, (AL//G/H/) 0.5935 GAMMA S1 1.1796 SON VEL,M/SEC 981.6	0.0000 F /A= 0.00000 0.5000 0.5000 0.5000 7.3 7.3 7.3 2700.0 2600.0 2500.6 4400.3 4220.3 4040.3 6.4658-5 6.7398-5 7.0280-5 28.650 28.758 28.835 0.5257 0.4696 0.4245 1.1905 1.2031 1.2165 965.8 951.0 937.5	0.5000 0.5000 0.5000 7.3 7.3 7.3 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3 7.3338-5 7.6615-5 8.0154-5 28.886 28.919 28.940 0.3906 0.3648 0.3459 1.2301 1.2430 1.2545	H!= 0.0000 0.5000 0.5000 0.5000 7.3 7.3 7.3 2100.0 2000.0 1900.0 3320.3 3140.3 2960.1 8.4006-5 8.8226-5 9.2881= 28.952 28.958 28.962 0.3321 0.3220 0.3143 1.2644 1.2729 1.2802 873.2 855.0 835.7	7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 1.600.0 1.600.
MOLE FRACTIONS AR 0.90917 C0 0.00010 C02 0.00020 N0 0.3464 N02 0.00001 N2 0.75142 0 0.03178 02 0.17328	0.00922 0.00926 0.00926 0.00007 0.00005 0.0000 0.00022 0.0025 0.0002 0.03028 0.02649 0.0227 0.00001 0.00001 0.00001 0.75728 0.76209 0.76600 0.02162 0.01418 0.00894 0.18129 0.18768 0.19270	0.00002 0.00001 0.00001 0.00028 0.00029 0.00029 0.01923 0.01594 0.01295 0.00001 0.00001 0.00001 0.76916 0.77170 0.77375 0.00541 0.00312 0.00171	0.00932 0.00932 0.00932 0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.01029 0.00798 0.00601 0.00001 0.00001 0.00001 0.77540 0.77673 0.77781 0.00068 0.00043 0.00015 0.20380 0.20523 0.20636	0 0,00000 0,00000 0,00000 0,00030 0,00030 0,00030 0,00438 0,00308 0,00207 0,00001 0,00001 0,00001 0,77867 0,77934 0,77985 0,00008 0,00003 0,00001
CASE= 0 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG F 1500.0 T, DEG F 2240.3 RHO, G/CC 1.1766-4 M, MOL HT 28.964 CP, CAL//GIII 0.2940 GAMMA (S 1.3044 SON VEL,M/SEC 749.4	0.0000 F/A= 0.00000 0.5000 0.5000 0.5000 7.3 7.3 7.3 7.3 1400.0 1300.0 1200.0 2060.3 1880.3 1700.1 1.2606-4 1.3576-4 1.4707-6 28.364 28.364 28.964 0.2898 0.2856 0.2815 1.3102 1.3161 1.3222 725.6 700.8 674.3	0.5000 0.5000 0.5000 7.3 7.3 7.3 7.3 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 16045-4 1.7649-4 1.9610-4 28.964 28.964 28.964 0.2773 0.2730 0.2681 1.3287 1.3357 1.3440	HI= 0.0000 0.5000 0.5000 0.5000 7.3 7.3 7.3 800.0 700.0 600.0 980.3 800.3 620.3 2.2061-4 2.5213-4 2.9415-4 28.964 28.964 28.964 0.2626 0.2569 0.2512 1.3536 1.3644 1.3757 557.5 523.6 486.8	7.3 7.3 7.3 500.0 400.0 300.0 8 440.3 260.3 80.3 13.5298-4 4.4122-4 5.8830-4 28.964 28.964 28.964 28.964 0.2402 0.2402 1.3865 1.3952 1.3959
MOLE FRACTIONS AR 0.00932 C02 0.00030 NO 0.00131 N2 0.78023 02 0.20882	0.00932 0.00932 0.0093 0.00030 0.00030 0.0003 0.00078 0.00043 0.0002 0.78050 0.78068 0.78078 6.20909 0.20927 0.20938	0.00030 0.00030 0.00030 0.00009 0.00004 0.00001 0.78084 0.78087 0.78089	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00000 0.00000 0.00000 0.78089 0.78089 0.78089 0.20948 0.20949 0.20945	0 0.00030 0.00030 0.00030 0 0.00000 0.00000 0.00000 0 0.78089 0.78089 0.78089

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0/F=100.0000
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P. ATM
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                         1.0000
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                                          1.0000
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P. PSIA
                14.7
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T. DEG K
                1500.0
                         1400.0
                                 1300.0
                                          1200.0
                                                   1100.0
                                                           1000.0
                                                                     900.0
                                                                             800.0
                                                                                      700.0
                                                                                              600.0
                                                                                                       500.0
                                                                                                                        300.0
                                                                                                                400.0
T. DEG F
                2240.3
                                                  1520.3
                                                           1340.3
                                                                                                       440.3
                         2060.3
                                 1880.3
                                          1700.3
                                                                   1160.3
                                                                             980.3
                                                                                      800,3
                                                                                              620.3
                                                                                                                260.3
                                                                                                                         80.3
RHO, G/CC
              2.3534-4 2.5215-4 2.7155-4 2.9418-4 3.2092-4 3.5301-4 3.9223-4 4.4126-4 5.0430-4 5.8835-4 7.0602-4 8.8253-4 1.1767-3
                                                                                     28.967
M. MOL WT
              28,967
                         28,967
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CP. CAL/IGHKI
                                 0.2907
               0.2995
                         0.2950
                                          0,2863
                                                  0,2820
                                                           0.2774
                                                                    0.2723
                                                                            0.2666
                                                                                     0,2606
                                                                                              0.2546
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GAMMA (S)
                1.2972
                         1,3030
                                 1.3089
                                          1,3151
                                                   1,3215
                                                           1.3285
                                                                    1.3369
                                                                            1.3466
                                                                                     1.3574
                                                                                              1,3688
                                                                                                      1,3799
                                                                                                               1.3893
                                                                                                                       1,3952
SON VEL.M/SEC
                 747.3
                          723.6
                                  698.9
                                           673.0
                                                   645.9
                                                            617.5
                                                                             556.1
                                                                                      522,2
                                                                                               485.5
                                                                                                       445.0
                                                                                                                399.4
                                                                                                                        346.6
MOLE FRACTIONS
AR 0.00923
                                0.00923
                       0.00923
                                        0.00923
                                                 0.00923
                                                          0.00923 0.00923 0.00923
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C02
              0.02088
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H20
              0.01961
                        0.01962
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MO
                        0.00072
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N2 0.77262
0H 0.00003
02 0.17642
                        0.77287
                                0.77303
                                         0.77313 0.77319
                                                          0.77321
                                                                  0.77322
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                       0.17667
                                0.17683
                                        0.17693 0.17699 0.17702 0.17703 0.17703
                                                                                    0.17703 0.17703 0.17703 0.17703 0.17703
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PM 1.5000 1.5000
                                 F/A= 0.01000
                                                 PERCENT FUEL=
                                                                0.9901
                                                                         PHI= 0.1465
P, ATM
                                                           1.5000
                       1.5000
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P. PSIA
               22.0
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               2800.0
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T, DEG F.
                         2700.0
                                 2600.0
                                          2500.0
                                                  2400.0
                                                           2300.0
                                                                            2100.0
                                                                                     2000.0
                                                                                             1900.0
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              4580.3
                                                                  3500.3
                         4400.3
                                 4220.3
                                          4040.3
                                                  3860.3
                                                           3680.3
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            1.8627-4 1.9406-4 2.0221-4 2.1082-4 2.1998-4 2.2981-4 2.4043-4 2.5200-4 2.6467-4 2.7864-4 2.9415-4 3.1147-4 3.3094-4
RHO, G/CC
M. MOL MT
                28.531
                         28,662
                                 28,761
                                          28.832
                                                   28.881
                                                           28.914
                                                                    28.936
                                                                            28.949
                                                                                     28.957
                                                                                              28.962
                                                                                                      28.964
                                                                                                               28.966
                                                                                                                       28,966
CP. CAL/IGHKE
               0.5735
                                          0.4290
                                                  0.3974
                                                                    0.3544
                                                                                     0.3299
                         0.5173
                                 0.4689
                                                           0.3729
                                                                            0.3405
                                                                                              0.3216
                                                                                                      0.3149
                                                                                                               0.3092
                                                                                                                       0.3041
GAMMA (S)
                1.1807
                         1,1901
                                 1.2010
                                         1.2129
                                                  1.2251
                                                                    1.2474
                                                                            1.2569
                                                                                     1.2653
                                                                                             1.2727
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                                                           1.2367
                                                                                                               1.2856
                                                                                                                       1.2915
               981.5
SON VEL, M/SEC
                          965.4
                                  950.1
                                           935.1
                                                   920.0
                                                                    888.0
                                                                             870.7
                                                                                      852.4
                                                                                                      813.0
                                                                                                                        770.1
                                                            904.4
                                                                                              833.2
                                                                                                                792.0
MOLE FRACTIONS
AR
              0.00909
                       0.00913
                                0.00917
                                         0.00919 0.00920 0.00921
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              0.00493 0.00345
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CO
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              0.01564 0.01721 0.01845
                                        0.01936 0.01998
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002
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H
              0.00161 0.00096 0.00054
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              0.01287 0.01434 0.01560
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NO2
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              0.74578
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                                                  0.76214
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                                                                  0.76647 0.76804
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                                0.00755
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                                                 0.00287
                                                          0.00165
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                                         0.00509 0.00378 0.00272 0.00188 0.00124 0.00079 0.00047 0.00027 0.00014
0H
              0.01012 0.00832 0.00662
02
              0.15061
                                0.15959
                                         0.16300 0.16584 0.16819 0.17014 0.17174 0.17304 0.17409 0.17492 0.17557
                        0.15550
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0/F= 50.0000
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                                   2.0000
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P. ATM
                          2.0000
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P. PSIA
                  29.4
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                                                                                                    600.0
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                                                                                                                      400.0
T. DEG K
                 1500.0
                          1400.0
                                   1300.0
                                                                                           800.3
                                                                                                                                80.3
T, DEG F
                 2240.3
                          2060.3
                                   1880.3
                                            1700.3
                                                     1520.3
                                                              1340.3
                                                                       1160.3
                                                                                  980.3
                                                                                                    620.3
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RHO, G/CC
               4.7072-4 5.0434-4 5.4314-4 5.8840-4 6.4190-4 7.0609-4 7.8454-4 8.8261-4 1.0087-3 1.1768-3 1.4122-3 1.7652-3 2.4064-3
                 28,969
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                                                                                                                              29,619
M. MOL NT
CP, CAL/IGITED
                0.3045
                          0.3000
                                   0.2955
                                            0.2911
                                                     0.2865
                                                               0.2818
                                                                        0.2764
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                                                                                          0.2642
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                1.2909
                                   1.3023
                                                                        1.3302
                                                                                 1.3399
                                                                                          1.3508
                                                                                                   1.3623
                                                                                                            1,3737
                                                                                                                     1.3837
                                                                                                                               1.2028
GAMMA (S)
                          1.2965
                                            1.3083
                                                     1.3147
                                                               1.3218
                745.5
                                    697.1
                                             671.3
                                                      644.3
                                                               615.9
                                                                                  554 7
                                                                                           520.9
                                                                                                    484.3
                                                                                                             444.0
                                                                                                                      398.6
SON VEL, M/SEC
                           721.8
                                                                        586.2
MOLE FRACTIONS
                                  0.00914
                                           0.00914 0.00914
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AR
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T, DEG K
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T, DEG F
               4580.3 4400.3 4220.3 4040.3 3860.3 3680.3 3500.3 3320.3 3140.3 2930.3 2780.3 2600.3 2420.3 3.7286-4 3.8835-4 4.0459-4 4.2176-4 4.4005-4 4.5968-4 4.8091-4 5.0404-4 5.2938-4 5.5733-4 5.8835-4 6.2299-4 6.6194-4
RHO, G/CC
                                                                                                            28.967
                          28,680
                                                     28.887
                                                                        28,939
                                                                                 28,952
                                                                                                   28.964
                                                                                                                               28.969
M. MOL HT
                 28,556
                                   28.773
                                            28.840
                                                               28,919
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CP, CAL/(G)(k)
                                                              0.3758
                                                                        0.3581
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                0.5688
                          0.5148
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GAMMA (S)
                  980.8
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SON VEL.M/SEC
                           964.7
                                    949.4
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MOLE FRACTIONS
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02
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CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WIT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F= 33.333 4.0000 4.00 58.8 58 1500.0 1400 2240.3 2060 9.4152-4 1.0088 28.972 28.97 0.3093 0.30 1.2851 1.29 743.8 720	00 4.0000 4.000 .8 58.8 58. .0 1300.0 1200. .3 1880.3 1700. -3 1.0864-3 1.1769- 72 28.972 28.97. 48 0.3003 0.295 05 1.2961 1.302	58.8 0 1100.0 3 1520.3 8 1.2839-3 1. 2 28.972 7 0.2910 0 1.3084	4.0000 58.8 1000.0 1340.3	4.0000 58.8 900.0 1160.3	4:00.4396 4:0000 58:8 800:0 980:3 .76F4-3 28:972 0:2742 1:3336 553:3	4.0000 58.8 700.0 800.3	4.0000 58.8 600.0 620.3 2.3538-3 28.972 0.2612 1.3561 483.2	4.0000 58.8 500.0 440.3 2.8246-3 28.972 0.2551 1.3678 443.0	4.0000 58.8 400.0 260.3 3.5307-3 28.972 0.2499 1.3784 397.8	4.0000 58.8 300.0 80.3 4.9528-3 30.481 0.4400 1.2324 317.6
MOLE FRACTIONS AR CO2 H20(L) H20 NO NO2 N2 OH	0.00905 0.009 0.06086 0.060 0.00000 0.000 0.05772 0.057 0.00095 0.000 0.00001 0.000 0.75786 0.758 0.00004 0.000 0.11351 0.113	86 0.06086 0.0606 0.00000 0.0000 73 0.05774 0.0577 57 0.00031 0.0001 01 0.0000 0.0000 06 0.75819 0.7582 01 0.00000 0.0000	0.05086 0 0.00000 0 0.05774 0 0.00007 0 0.00000 0 7 0.75831 0 0.00000 0	0.06086 0 0.00000 0 0.05774 0 0.00003 0 0.00000 0 0.75833 0	0.06086 0.00000 0.05774 0.00001 0.00000 0.75834 0.00000	0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.04950 0.00824 0.00000 0.00000 0.75835 0.00000 0.11400
CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGI(K) GAMMA (S) SON VEL,M/SEC	6.0000 6.00 88.2 88 2800.0 2700 4580.3 4400	00 6.0000 6.000 .2 88.2 88. .0 2600.0 2500. .3 4220.3 4040. -4 8.0973-4 8.4392- 0.2 0.4625 0.426 98 1.2002 1.211	88.2 2400.0 3860.3 8.8039-4 9.8.897 0.3982 3.1.2223	6.0000 88.2 2300.0 3680.3	26 PH 6.0000 88.2 2200.0 3500.3 6200-4 1 28.944 0.3599 1.2417 885.9	HI = 0.4396 6.0000 88.2 2100.0 3320.3 .0082-3 28.956 0.3475 1.2499 868.1	6.0000 88.2 2000.0 3140.3 .0589-3 28.963 0.3380 1.2570 849.5	6.0000 88.2 1900.0 2930.3 1.1148-3 28.967 0.3304 1.2633 830.0	6.0000 88.2 1800.0 2780.3 1.1768-3 28.970 0.3242 1.2691 809.7	6.0000 88.2 1700.0 2600.3 1.2461-3 28.971 0.3188 1.2745 788.6	6.0000 88.2 1600.0 2420.3 1.3240-3 28.972 0.3139 1.2798 766.6
MOLE FRACTIONS AR CO CO2 H HO2 H2 H20 N0 N02 N2 0 OH	0.00894 0.008 0.00977 0.006 0.05029 0.053 0.00123 0.000 0.00138 0.000 0.00138 0.000 0.04871 0.050 0.02546 0.022 0.00003 0.000 0.73568 0.740 0.00694 0.004 0.01253 0.009 0.09902 0.100	68 0.00433 0.0026 60 0.05615 0.0579 71 0.00039 0.0002 02 0.00002 0.0003 96 0.00064 0.004 91 0.05269 0.0540 33 0.00002 0.0003 0.0153 0.74395 0.7469 60 0.00303 0.0019 95 0.00770 0.0058	0.00155 (0.05915 (0.05915 (0.05915 (0.05916 (0.0	0.00086	0.00044 0.06035 0.00002 0.00001 0.00008 0.05656 0.00937 0.00937 0.75292 0.0036	0.00022 0.06061 0.00001 0.00001 0.00004 0.05698 0.00745 0.00002 0.75419 0.00019	0.00905 0.00010 0.06074 0.00000 0.00000 0.00002 0.05727 0.00578 0.00002 0.75521 0.00009 0.00086 0.11086	0.00905 0.00004 0.06081 0.00000 0.00000 0.05746 0.00436 0.00002 0.75603 0.00004 0.00052 0.11166	0.00905 0.00002 0.06084 0.00000 0.00000 0.00000 0.05758 0.00318 0.00001 0.75669 0.000029 0.11232	0.00905 0.00001 0.06085 0.00000 0.00000 0.00000 0.05766 0.00224 0.00001 0.75719 0.00001 0.00001 0.00015	0.00905 0.00000 0.06085 0.00000 0.00000 0.00000 0.05770 0.00150 0.00001 0.75758 0.00000 0.00008 0.11322

CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC 2 M, MOL WT CP, CAL/IGI(K) GAMMA (S) SON VEL,M/SEC	0/F= 25,0000 10,000 10,000 147,0 147,0 1500,0 1400,0 2240,3 2060,3 3540-3 2,5222-3 28,974 28,974 0,3139 0,3094 1,2797 1,2848 742,2 718,4	F/A= 0.04000 10.000 10.000 147.0 147.0 1300.0 1200.0 1880.3 1700.3 2.7162-3 2.9425-3 28.974 28.974 0.3049 0.3002 1.2902 1.2961 693.8 668.1	147.0 1100.0 1520.3 3.2100-3 3.5 28.974 0.2954	10.000 10.000 147.0 147.0 1000.0 900.0 1340.3 1160.3	HI= 0.5862 10.000 10.000 147.0 147.0 800.0 700.0 980.3 800.3 4.4138-3 5.0443-3 28.974 28.974 0.2779 0.2712 1.3276 1.3386 552.1 518.5	10.000 10.00 147.0 147 600.0 500 620.3 440 5.8850-3 7.0620 28.974 28.97 0.2644 0.251 1.3503 1.364 482.2 442	.0 147.0 147.0 .0 400.0 300.0 .3 260.3 80.3 .3 8.8276-3 1.2698-2 .4 28.974 31.257 .5 0.2523 0.3418 .2 1.3733 1.2595
CO2 H2O(L) (0 H2O (0 NO (0 NO2 N2 OH (0	0.00897 0.00897 0.08027 0.08027 0.00000 0.00000 0.07624 0.07525 0.00081 0.00008 0.00001 0.00001 0.75071 0.75087 0.00003 0.00001 0.00003 0.00001 0.08297 0.08314	0.00897 0.00P97 0.08027 0.08027 0.00000 0.00000 0.07625 0.07625 0.00027 0.00013 0.00001 0.00000 0.75098 (.75105 0.00000 0.00000 0.08325 0.08332	0.08027 0 0.00000 0 0.07625 0 0.00006 0 0.00000 0 0.75109 0	.00897 0.00897 .08027 0.08027 .00000 0.00000 .07625 0.07625 .00002 0.00001 .00000 0.00000 .75111 0.75112 .00000 0.00000 .08338 0.08338	0.00897 0.00897 0.08027 0.08027 0.00000 0.00000 0.07625 0.07625 0.00000 0.00000 0.00000 0.00000 0.75112 0.75112 0.00000 0.00000 0.08339 0.08339	0.00897 0.008 0.08027 0.080 0.00000 0.000 0.07625 0.076 0.00000 0.000 0.00000 0.000 0.75112 0.751 0.00000 0.000 0.08339 0.083	27 0.08027 0.08027 0.00000 0.07304 25 0.07625 0.00321 00 0.00000 0.00000 00 0.00000 0.00000 012 0.75112 0.75112 00 0.00000 0.00000
CASE= 0 P, ATM P, PSIA I, DEG K I, DEG F RHO, G/CC I M, MOL WI CP, CAL/(G!/K) GAMMA (S) SON VEL,M/SEC	0/F= 25.0000 15.000 15.000 220.4 220.4 2800.0 2700.0 4580.3 4400.3 28.11-3 1.9468-3 28.660 28.755 0.5282 0.4843 1.1951 1.1941 981.1 965.5	F/A= 0.04000 15.000 15.000 220.4 220.4 2600.0 2500.0 4220.3 4040.3 2.0267-3 2.1115-3 28.826 28.877 0.4167 0.4160 1.2040 1.2143 950.2 934.9	220.4 2400.0 3860.3 2.2022-3 2.2 28.913 0.3918	15.000 15.000 220.4 220.4 2300.0 2200.0 3680.3 3500.3	HI= 0.5862 15.000 15.000 220.4 220.4 2100.0 2000.0 3320.3 3140.3 2.5210-3 2.6476-3 28.961 28.967 0.3486 0.3404 1.2481 1.2543 867.4 848.5	15.000 15.00 220.4 220 1900.0 1800 29.0.3 2780 2.7873-3 2.9423 28.971 28.9 0.3337 0.321 1.2598 1.26 828.8 808	.4 220.4 220.4 .0 1700.0 1600.0 .3 2600.3 2420.3 -3 3.1155-3 3.3103-3 72 28.974 28.974 30 0.3230 0.3183 49 1.2699 1.2747
C0 C02 H H02 H2 H20 N0 N02 N2 0	0.00887 0.00890 0.00995 0.00672 0.06945 0.07295 0.00079 0.00046 0.00003 0.00003 0.00142 0.00097 0.06813 0.07016 0.02178 0.01904 0.00003 0.00003 0.73205 0.73590 0.00376 0.00252 0.01092 0.00859 0.01092 0.00859	0.00892 0.00894 0.00432 0.00264 0.07554 0.07736 0.00025 0.00013 0.00002 0.00013 0.00164 0.00041 0.07178 0.07304 0.01646 0.01405 0.00003 0.00003 0.73903 0.74156 0.00163 0.00102 0.00660 0.00495 0.07476 0.07585	0.00153 0 0.07857 0 0.00006 0 0.00001 0 0.00025 0 0.07400 0 0.01183 0 0.00003 0 0.74359 0 0.00062 0 0.00062 0	.00896 0.00896 .00084 0.00044 .07933 0.07977 .00003 0.00001 .00014 0.00008 .07471 0.07523 .00979 0.00796 .00002 0.00002 .74522 0.74554 .00036 0.00175 .07803 0.07904	0.00896 0.00896 0.00021 0.00010 0.08002 0.08016 0.00001 0.00000 0.00001 0.00000 0.00059 0.07585 0.00633 0.00491 0.0002 0.00002 0.74760 0.74846 0.0010 0.0002 0.0010 0.00002 0.00115 0.00073 0.07995 0.03074	0.00897 0.008 0.00004 0.000 0.08022 0.080 0.00000 0.000 0.00000 0.000 0.07601 0.000 0.0001 0.000 0.07601 0.002 0.074916 0.749 0.00002 0.000 0.00004 0.000 0.08141 0.081	01 0.00000 0.00000 25 0.08027 0.08027 00 0.00000 0.00000 00 0.00000 0.00000 12 0.07618 0.07622 11 0.00190 0.0018 12 0.07618 0.75047 11 0.75014 0.75047 11 0.75014 0.75047 12 0.00000 0.00000 12 0.00001 0.00000 13 0.00000 0.00000 14 0.75014 0.75047 15 0.00000 0.00000 15 0.00001 0.00000

P, T, T, RHO M, CP GAI	CASE= C ATM PSIA DEG K DEG F), G/CC MOL WT , CAL/(G)(K) MYA (S) N VEL,M/SEC	20.000 293.9 1500.0 2240.3	293.9 1400.0 2060.3 5.0447-3 28.977 0.3139 1.2796	F/A= 0. 20.000 293.9 1300.0 1880.3 5.4328-3 28.977 0.3094 1.2848 692.3	05000 20.000 293.9 1200.0 1700.3 5.8855-3 28.977 0.3047 1.2905 666.6	PERCENT F 20.000 293.9 1100.0 1520.3 6.4206-3 28.977 0.2997 1.2968 639.8	FUEL = 4, 20.000 293.9 1000.0 1340.3 7.0626-3 28.977 0.2943 1.3038 611.6	7619 F 20.000 293.9 900.0 1160.3 7.8474-3 28.977 0.2882 1.3122 582.1	PHI= 0.732 20.000 293.9 800.0 980.3 8.8283-3 28.977 0.2816 1.3220 550.9	7 20.000 293.9 700.0 800.3 1.0090-2 28.977 0.2746 1.3329 517.4	20,000 293.9 600.0 620.3 1,1771-2 28,977 0,2675 1,3447 481.2	20.000 293.9 500.0 440.3 1.4125-2 28.977 0.2608 1.3568 441.2	20.000 293.9 400.0 260.3 1.7657-7 0.2547 1.3684 396.3	20.000 293.9 300.0 80.3 2.5952-2 31.943 0.3154 1.2623 314.0
AR CO2) (L)	0.00888 0.09932 0.00000 0.09440 0.00065 0.00001 0.74370 0.00003 0.05301	0.09932 0.00000 0.09441 0.00039 0.00001 0.74383 0.00001	0.00888 0.09932 0.00000 0.09441 0.00021 0.00001 0.74392 0.00000 0.05324	0.00P88 0.09932 0.00000 0.09442 0.0001 0.0000 0.74397 0.00000 0.05330	0.00888 0.09932 0.00000 0.09442 0.00005 0.00000 0.74400 0.00000 0.05333	0.00888 0.09932 0.60000 0.09442 0.00000 0.74402 0.00000 0.05334	0.00898 0.09932 0.00000 0.09442 0.00001 0.00000 0.74402 0.00000 0.05335	0.00888 0.09932 0.00000 0.09442 0.00000 0.00000 0.74402 0.00000 0.05335	0.00888 0.09932 0.00000 0.09442 0.00000 0.74403 0.00000 0.05335	0.00888 0.09932 0.00000 0.09442 0.00000 0.00000 0.74403 0.00000 0.05335	0.00888 0.09932 0.00000 0.09442 0.00000 0.00000 0.74403 0.00000 0.05335	0.00888 0.09932 0.00000 0.09442 0.00000 0.00000 0.74403 0.00000 0.05335	0.00888 0.09932 0.09284 0.00157 0.00000 0.00000 0.74403 0.00000 0.05335
P, T, T, RHO M, CP GAI	CASE= C ATM PSIA DEG K DEG F D, G/CC MOL WT , CAL/IGI(K) MA (S) N VEL,M/SEC	0 0/F= 30.000 440.9 2800.0 4580.3 3.7453-3 28.684 0.5202 1.1860 981.1	440.9 2700.0 4400.3 3.8961-3 28.773 0.4788 1.1949	F/A= 0. 30.000 440.9 2600.0 4220.3 4.0554-3 28.840 0.4430 1.2046 950.2	30.000 440.9 2500.0 4040.3	PERCENT F 30.000 440.9 2400.0 3860.3 4.4056-3 28.921 0.3909 1.2238 918.9	30.000 440.9 2300.0 3680.3	30.000 440.9 2200.0 3500.3	PHI= 0.732 30.000 440.9 2100.0 3320.3 5.0427-3 28.965 0.3506 1.2460 866.7	30.000 440.9 2000.0 3140,3	30.000 440.9 1900.0 20.20 5.5751-3 28.973 0.3369 1.2565 827.7	30.000 440.9 1800.0 2780.3 5.8852-3 28.975 0.3317 1.2611 807.1	30.000 440.9 1700.0 2600.3 6.2316-3 28.976 0.3270 1.2656 785.7	30.000 440.9 1600.0 2420.3 6.6212-3 28.977 0.3226 1.2701 763.6
MOL AR CO CO H HO H20 NO NO NO O O O O O O	2	0.00879 0.01100 0.08731 0.00059 0.00160 0.08690 0.01746 0.00003 0.72775 0.00214 0.00930 0.04708	0.00743 0.09120 0.00034 0.00003 0.00109 0.08884 0.01518 0.00003 0.73120 0.00142	0.00884 0.00477 0.09408 0.00019 0.00002 0.00072 0.09037 0.01307 0.00092 0.73397 0.00092 0.00556 0.04746	0.00886 0.00292 0.09610 0.00010 0.00002 0.00045 0.09154 0.01114 0.00002 0.73616 0.00058 0.00416 0.04796	0.00887 0.00169 0.09744 0.00005 0.00001 0.00027 0.09241 0.00936 0.00002 0.73789 0.00035 0.00303 0.04860	0.00887 0.0093 0.09828 0.00002 0.00001 0.00016 0.00775 0.00002 0.73926 0.00020 0.00214 0.04930	0.00888 0.00048 0.09877 0.00001 0.00009 0.09352 0.00630 0.00002 0.74035 0.00011 0.00146 0.05000	0.00888 0.00023 0.09905 0.00000 0.00001 0.00004 0.09385 0.00502 0.00002 0.74121 0.00006 0.00096 0.0096	0.00888 0.00010 0.09920 0.00000 0.00002 0.09407 0.00390 0.00002 0.74191 0.00003 0.00061 0.05127	0.00888 0.00004 0.09927 0.00000 0.00000 0.009421 0.00294 0.00002 0.74246 0.00001 0.000036 0.05179	0.00888 0.00002 0.09930 0.00000 0.00000 0.00000 0.00215 0.00001 0.74290 0.00001 0.00021 0.00021 0.05222	0.00888 0.00001 0.09931 0.00000 0.00000 0.00000 0.09436 0.00151 0.00001 0.74325 0.00000 0.00011 0.05256	0.00888 0.00000 0.09932 0.00000 0.00000 0.09439 0.00102 0.00001 0.74351 0.00000 0.00005 0.0005582

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P, PSIA 587.8 T, DEG K 1500.0 I T, DEG F 2240.3 2 RHO, G/CC 9.4176-3 1.0 M, MOL WT 28.979 2 CP, CAL/HG)(K) 0.3224 C GAMMA (S) 1.2702 1	.6667 F/A= 0.06000 40.000 40.000 40.000 587.8 587.8 587.8 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 0090-2 1.0866-2 1.1772-2 28.979 28.979 28.979 0.3182 0.3137 0.3089 1.2747 1.2797 1.2853 715.6 690.9 665.2	587.8 587.8 1100.0 1000.0 1520.3 1340.3 1.2842-2 1.4126-2 1. 28.979 28.979 0.3038 0.2983	40.000 40.000 40.000 587.8 587.8 587.8 900.0 800.0 700.0 1160.3 980.3 800.3	40,000 40,000 40,000 40,000 587,8 587,8 587,8 587,8 587,8 600,0 500,0 400,0 300,0 620,3 440,3 260,3 80,3 2,3544-2 2,8253-2 3,7447-2 5,2995-2 28,979 28,979 30,728 32,615 0,2706 0,2635 0,8531 0,3065 1,3394 1,3517 1,2027 1,2564 480,2 440,4 360,8 310,0
CO2 0.11801 0. H201L: 0.00000 0. H20 0.11223 0. N0 0.00043 0. N2 0.73685 0. OH 0.00002 0.	.00880 0.00880 0.00P90 .11802 0.11802 0.11862 .00000 0.00000 0.00000 .11224 0.11224 .00026 0.00014 0.00007 .73694 0.73700 0.73703 .00001 0.00000 0.00000 .02374 0.02380 0.02384	0.11802 0.11802 0 0.00000 0.60000 0 0.11224 0.11224 0 0.00003 0.00001 0 0.73705 0.73706 0 0.00000 0.00000 0	0.00890 0.00880 0.00880 0.11802 0.11802 0.11802 0.00000 0.00000 0.00000 0.11224 0.11224 0.00000 0.00000 0.00000 0.73707 0.73707 0.73707 0.00000 0.00000 0.00000 0.00388 0.02388 0.02388	0.00880 0.00880 0.00880 0.00880 0.11802 0.11802 0.11802 0.11802 0.00000 0.00000 0.05691 0.1147 0.11224 0.05533 0.00077 0.00000 0.00000 0.00000 0.00000 0.73707 0.73707 0.73707 0.73707 0.00000 0.00000 0.00000 0.00000 0.02388 0.02388 0.02388 0.02388
P, PSIA 734.8 T, DEG K 2800.0 2 T, DEG F 4580.3 4 RHO, G/CC 6.2369-3 6.4 M, MOL WT 28.660 2 C, CAL/IGIKI 0.5323 C GAMMA (S) 1.1832 1	50.000 50.000 50.000 734.8 734.8 734.8 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3	734.8 734.8 2400.0 2300.0 3860.3 3680.3 7.3423-3 7.6679-3 8. 28.919 28.943 0.3971 0.3777	04 PHI= 0.8792 50.000 50.000 50.000 734.8 734.8 734.8 2200.0 2100.0 2000.0 3500.3 3320.3 3140.3 0207-3 8.4053-3 8.8272-3 28.959 28.968 28.973 0.3636 0.3533 0.3457 1.2374 1.2497 884.1 865.8 846.7	50,000 50,000 50,000 50,000 734,8 734,8 734,8 734,8 1900,0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 29.2927-3 9.8095-3 1.0387-2 1.1036-2 28.976 28.978 28.979 28.979 0.3399 0.3350 0.3307 0.3266 1.2536 1.2578 1.2618 1.2659 826.7 806.0 784.5 762.3
CO 0.01422 0.00249 0.10249 0.10249 0.10249 0.10249 0.10240 0.10240 0.10484 0.10484 0.10484 0.10242 0.10242 0.10224 0.1	.00873 0.00875 0.00877 .00983 0.00644 0.00399 .10728 0.11096 0.11363 .00031 0.00017 0.00009 .00002 0.00002 0.00001 .00148 0.00099 0.00053 .10683 0.10838 0.10955 .01041 0.00881 0.00742 .00002 0.00001 0.00001 .72617 0.72884 0.73089 .00076 0.00048 0.00030 .00582 0.00441 0.00327 .02235 0.02173 0.02143	0.00234 0.00129 0.11543 0.11658 0.00004 0.00002 0.00001 0.00001 0.0001 0	0,00879 0,00880 0,00880 0,00067 0,00032 0,00014 0,11726 0,11745 0,11785 0,00001 0,00000 0,00000 0,00001 0,00000 0,00000 0,00012 0,00000 0,00003 1,11146 0,11175 0,11195 0,00415 0,00331 0,00257 0,00001 0,00001 0,00001 0,73447 0,73512 0,73562 0,0014 0,00075 0,00048 0,0014 0,00075 0,00048	0.00880 0.00880 0.00880 0.00880 0.00006 0.00002 0.00001 0.00000 0.11794 0.11799 0.11801 0.11801 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.11207 0.11215 0.11219 0.11222 0.00195 0.00142 0.00100 0.00067 0.00001 0.00001 0.00001 0.00067 0.73601 0.73631 0.73655 0.73672 0.00001 0.00000 0.00000 0.00000 0.000285 0.02313 0.02335 0.02352

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P, P T, D T, D RHO, M, M CP, GAMM	CASE = C TM SIA SIA EG K EG F G/CC POL WT CAL/IGI(K) IA (S) VEL,M/SEC	0 0/F= 0.5000 7.3 1500.0 2240.3 1.1714-4 28.836 0.3262 1.2678 740.5	14.2857 0.5000 7.3 1400.0 2060.3 1.2550-4 28.836 0.3226 1.2716 716.5	F/A= 0. 0.5000 7.3 1300.0 1880.3 1.3516-4 28.836 0.3188 1.2758 691.5	0.5000 7.3 1200.0 1700.3	PERCENT F 0.5000 7.3 1100.0 1520.3 1.5973-4 28.836 0.3101 1.2857 638.6	UEL = 6. 0.5000 7.3 1000.0 1340.3 1.7571-4 28.836 0.3052 1.2917 610.3	0.5000 7.3 900.0 1160.3	H1= 1,025 0,5000 7,3 800.0 980.3 2,1963-4 28,836 0,2925 1,3082 549,3	8 0.5000 7.3 700.0 800.3 2.5101-4 28.836 0.2850 1.3192 516.0	0.5000 7.3 600.9 620.3 2.9317-4 28.868 0.2997 1.3114 476.1	0.5000 7.3 500.0 440.3 3.5287-4 28.955 0.2796 1.3324 437,4	0.5000 7.3 400.0 260.3 4.4145-4 28.979 0.2609 1.3574 394.7	0.5000 7.3 300.0 80.3 6.2913-4 30.975 1.7933 1.1362 302.5
MOLE AR C:S:F CH4 CO CO2 H2 H2O: H2O: NH3 N2		0.00867 0.00000 0.00000 0.00727 0.12840 0.00278 0.00000 0.12630 0.00000 0.72657	0.00867 0.00000 0.00000 0.00692 0.12876 0.00313 0.00000 0.12595 0.00000 0.72657	0.00867 0.00000 0.00000 0.00647 0.12921 0.00358 0.00000 0.12550 0.00000	0.00567 0.00000 0.00000 0.00590 0.;2978 G.00415 0.00000 0.12493 0.00000 0.72657	0.00867 0.00000 0.00000 0.00517 0.13050 0.00488 0.00000 0.12420 0.00000 0.72657	0.00867 0.60000 0.00000 0.00427 0.13140 0.00578 0.00000 0.12330 0.00000 0.72657	0.00867 0.00000 0.00000 0.00321 0.13247 0.00684 0.00000 0.12224 0.00000 0.72657	0.00867 0.00000 0.00000 0.00208 0.13360 0.00797 0.00000 0.12111 0.00000 0.72657	0.00867 0.00000 0.00001 0.00106 0.13461 0.00896 0.00000 0.12011 0.00000 0.72658	0.00868 0.00000 0.00055 0.00030 0.13498 0.00755 0.00000 0.12056 0.00001 0.72737	0.00871 0.00000 0.00206 0.00001 0.13416 0.00181 0.00000 0.12366 0.00001 0.72957	0.00872 0.00000 0.00249 0.00000 0.13386 0.00014 0.00000 0.12460 0.00000 0.73018	0.00868 0.00450 0.00026 0.00000 0.13098 0.00000 0.06406 0.06457 0.00000 0.72695
P, F T, C T, C RHO, M, F CP, GAMI	CASE = C ITM SIA EG K EG /CC OL HT CAL/IG/IK/ W (S) VEL,M/SEC	0 0/F= 1.0000 14.7 2800.0 4580.3 1.1719-4 27.385 0.9960 1.1393 984.2	14,2857 1,0000 14,7 2700.0 4400.3 1,2517-4 27,731 0,8974 1,1421 961.5	F/A= 0. 1.0000 14.7 2600.0 4220.3 1.3136-4 28.025 0.8020 1.1467 940.5	07000 1,0000 14,7 2500.0 4040.3 1,3779-4 28,267 0,7113 1,1535 921.0	PERCENT F 1.0000 14.7 2400.0 3860.3 1.4451-4 28.459 0.6272 1.1629 903.0	UEL = 6 1.0000 14.7 2300.0 3680.3 1.5157-4 28.605 0.5517 1.1750 886.3	1.0000 14.7 2200.0 3500.3	HI= 1.025 1.0000 14.7 2100.0 3320.3 1.6700-4 28.777 0.4269 1.2091 856.5	8 1.0000 14.7 2000.0 3140.3 1.752.4 28.814 0.3798 1.2303 842.6	1.0000 .4.7 1900.0 2960.3 1.8491-4 28.829 0.3514 1.2471 826.7	1.0000 14.7 1800.0 2780.3 1.9522-4 28.834 0.3301 1.2560 807.4	1.0000 14.7 1700.0 2600.3 2.0671-4 28.835 0.3334 1.2608 786.1	1,0000 14,7 1500.0 2420.3 2,1963-4 28,836 0,3296 1,2644 763,7
MOLE AR CO CO2 H HO2 H2 H2 H20 NO N2 O OH O2	FRACTIONS	0.00824 0.06455 0.06450 0.00957 0.00001 0.01384 0.09455 0.01164 0.68418 0.00805 0.00805 0.01882	0.00834 0.05422 0.07626 0.00593 0.00001 0.01103 0.10289 0.00928 0.69409 0.00489 0.01450 0.01856	0.00843 0.04396 0.08790 0.00354 0.00000 0.00859 0.10974 0.00710 0.70259 0.00280 0.01069 0.01465	0.00850 0.03444 0.09876 0.00203 0.00000 0.00657 0.11519 0.00520 0.70963 0.00150 0.00753	0.00856 0.02616 0.10774 0.00111 0.00000 0.00496 0.11936 0.00361 0.71527 0.00074 0.00504	0.00860 0.01945 0.11514 0.00059 0.00000 0.00373 0.12244 0.00234 0.71958 0.00034 0.00318 0.00462	0.00864 0.01442 0.12066 0.00030 0.00000 0.00284 0.12459 0.00139 0.72269 0.00013 0.00187 0.00248	0.00866 0.01105 0.12435 0.00015 0.00000 0.00228 0.12596 0.00072 0.72473 0.00004 0.00099 0.00106	0.00867 0.00918 0.12639 0.00007 0.00000 0.00202 0.12669 0.00031 0.72587 0.00001 0.00047 0.00032	0.00867 0.00837 0.12727 0.00004 0.00000 0.00200 0.12694 0.00011 0.72635 0.00000 0.00019	0.00867 0.00802 0.12764 0.00002 0.00000 0.00210 0.12693 0.00003 0.72650 0.00000 0.00007	0.00867 0.00779 0.12788 0.00001 0.00000 0.00227 0.12679 0.00001 0.72655 0.00000 0.00002 0.00000	0.00867 0.00756 0.12812 0.00000 0.000250 0.12658 0.00000 0.72656 0.00000 0.00001 0.00000

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CASE= 0 0/F P, ATM 1.500 P, PSIA 22 T, DEG k 1500 T, DEG F 2240 RHO, G/CC 3.4178 M, MOL NT 28.04 CP, CAL/(G/IK) 0.333 GAMMA (5) 1.265 SON VEL, M/SEC 751.	0 1.5000 1.5 0 22.0 2 0 1400.0 130 3 2060.3 188 4 3.6620-4 3.943 6 28.046 28. 8 0.3313 0.3 5 1.2720 1.2	000 1.5000 1.50 2.0 22.0 22 0.0 1200.0 1100 0.3 1700.3 1520 7-4 4.2723-4 4.660 046 28.046 28.0 289 0.3266 0.32	2.0 22.0 0.0 1000.0 5 1.3 1340.3 11 -4 5.1268-4 5.65 46 28.046 28 45 0.3227 0.	.5000 1.5000 1.5000 22.0 22.0 22.0 000.0 800.0 700.0 60.3 980.3 800.3	1.5000 1.5000 22.0 22.0 600.0 500.0 620.3 440.3 8.7884-4 1.0588-3 28.846 28.961 0.3385 0.2864 1.2805 1.3215 470.6 435.5	1.5000 1.5000 22.0 22.0 400.0 300.0 260.3 80.3 1.3245-3 2.0222-3 28.982 33.188 0.2683 0.7419 1.3433 1.1612 392.7 295.4
MOLE FRACTIONS AR 0.0083 C151 0.0000 CH4 0.0000 C0 0.044 C02 0.1046 H20 0.0000 H20 0.122C NH3 0.0000 NH3 0.0000 NH3 0.7001	0 0.00000 0.00 0 0.00000 0.00 8 0.04259 0.04 0 0.10679 0.19 5 0.02214 0.02 0 0.00000 0.00 0 0.12001 0.11 0 0.00000 0.00	000 0.60000 0.000 0.00000 0.0000 013 0.03708 0.033 925 0.11230 0.116 460 0.02765 0.033 000 0.00000 0.000 755 0.11450 0.116	000 0.00000 0.0 000 0.00000 0.0 128 0.02858 0.0 109 0.12080 0.1 44 0.03614 0.0 100 0.00000 0.1 171 0.10600 0.1 100 0.00001 0.0	00836 0.00838 0.00850 00000 0.00000 0.00000 00003 0.00110 0.00831 02282 0.01506 0.00419 12654 0.13354 0.13937 44178 0.04534 0.02829 00000 0.00000 0.00000 10030 0.09487 0.39952 00001 0.00004 0.00006 00010 0.70167 0.71176	0.00911 0.00155 0.00000 0.00000 0.11164 0.12397 0.00005 0.00002	0.00844 0.00836 0.02232 0.03231 0.00516 0.00003 0.00000 0.00000 0.12343 0.11704 0.00010 0.00000 0.10000 0.12258 0.13319 0.01953 0.00001 0.00000 0.70734 0.70015
CASE= 0 0/F P, ATM 2.00C P, PSIA 29 T, DEG K 2800 T, DEG F 4580 RHO, G/CC 2.3758 M, MOL WT 27.39 CP, CAL/IGILK 0.852 GAMMA IS1 1146 SON VEL.M/SEC 989	0 2.0000 2.0 4 29.4 2 0 2700.0 260 3 4400.3 422 4 2.4866-4 2.600 3 27.546 27. 7 0.7471 0.6 8 1.1556 1.1	000 2.0000 2.00 9.4 29.4 29 0.0 2500.0 2400 0.3 4040.3 3860 5-4 2.7177-4 2.839 740 27.875 27.3	29.4 29.4 20.0 2300.0 22 23.3 3680.3 35 24.2.9675~4 3.10 258 28.003 28 26.4044 0 27.2 0.4044 0	PHI = 1.1723 1.0000 2.0000 2.0000 29.4 29.4 29.4 200.0 2100.0 2000.0 3320.3 3140.3 3.025 28.036 28.042 3.025 28.036 28.042 3.025 3.253 3.253 3.2399 1.2493 1.2551 3.2399 1.2493 1.2551 3.2399 1.2493 3.2551	2.0000 2.0000 29.4 29.4 1900.0 1800.0 2960.3 2780.3 3.5975-4 3.7975-4 28.044 28.045 0.3451 0.3416 1.2590 1.2619 842.1 820.6	2.0000 2.0000 29.4 29.4 1700.0 1600.0 2600.3 2420.3 4.0210-4 4.2723-4 28.045 28.046 0.3388 0.3363 1.2645 1.2670 798.3 775.2
MOLE FRACTIONS AR 0.0081 C0 0.0766 C02 0.0689 H 0.0077 H02 0.0000 H2 0.1079 H2 0.1079 H2 0.0076 0 0.0076 0 0.0076 0 0.0076 0 0.0036	2 0.06919 0.06 5 0.07753 0.08 0 0.00500 0.00 1 0.00000 0.00 13 0.01569 0.11 6 0.11556 0.12 14 0.00519 0.05 15 0.68505 0.65 17 0.00195 0.00 17 0.00974 0.00	272 0.05793 0.05- 503 0.09003 0.094 320 0.00202 0.001 0405 0.01307 0.012 167 0.12515 0.122 338 0.00199 0.00 081 0.69487 0.693 055 0.000410 0.000 655 0.000410 0.000	188 0.05310 0.0 103 0.09605 0.0 226 0.00077 0.6 100 0.00000 0.0 170 0.1276 0.6 1719 0.12815 0.6 1719 0.69879 0.6 1715 0.00050 0.6 1715 0.00050 0.6 1715 0.00050 0.6 1715 0.00050 0.6 1715 0.00050 0.6	00835 0.00836 0.00836 05201 0.05120 0.05044 09726 0.09812 0.09811 00045 0.00026 0.00014 00000 0.00000 0.00000 01311 0.01364 0.01431 12839 0.12818 0.12769 00022 0.00008 0.00003 03950 0.69984 0.70000 0001 0.00000 0.00000 00063 0.00029 0.00000	0.04962 0.04868 0.09974 0.10070 0.00007 0.00003 0.00000 0.00000 0.01510 0.01605 0.12698 0.12608 0.00001 0.00000 0.70007 0.70010 0.00000 0.00000 0.00000 0.00000	0.00001 0.00000

ADD C(S) ADD H20(L)

CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGIIK) GAMMA (S) SON VEL,M/SEC	3.0000 44.1 1500.0 2240.3	11.1111 3.0000 44.1 1400.0 2060.3 7.1321-4 27,311 0.3385 1.2738 736.8	F/A= 0. 3,0000 44.1 1300.0 1880.3 7.6808-4 27.311 0.3369 1.2755 710.5	3.0000 44.1 1200.0 1700.3	PERCENT F 3.0000 44.1 1100.0 1520.3 9.0774-4 27.312 0.3351 1.2775 654.1	3.0000 44.1 1000.0 1340.3	.2569 F 3.0000 44.1 900.0 1160.3 1.1121-3 27.377 0.4120 1.2438 583.1	HI= 1.318 3.0000 44.1 800.0 980.3 1.2760-3 27.921 0.5989 1.1973 534.1	3.0000 44.1 700.0 800.3 1.4930-3 28.586 0.4369 1.2340 501.2	3.0000 44.1 600.0 620.3 1.7595-6 0.3299 1.2842 471.0	3.0000 44.1 500.0 440.3 2.1181-3 28.968 0.2874 1.3186 435.0	3.0000 44.1 400.0 260.3 2.6492-3 28.985 0.2717 1.3380 391.8	3.0000 44.1 300.0 80.3 4.1753-3 34.261 0.5216 1.1767 292.7
MOLE FRACTIONS AR (IS) CH4 CO CO2 H2 H201L1 H20 NH3 N2	0.00806 0.00000 0.00000 0.07611 0.08601 0.03946 0.00000 0.11484 0.00000 0.67552	0.00806 0.00000 0.00000 0.07308 0.08903 0.04248 0.00000 0.11182 0.00000 0.67552	0.00806 0.00000 0.00000 0.06942 0.09270 0.04615 0.00000 0.10815 0.00000 0.67552	0.006C6 0.00000 0.00000 0.06492 0.09719 0.05064 0.00000 0.10365 0.00001 0.67552	0.00806 0.00000 0.00000 0.05937 0.10274 0.05617 0.00000 0.09811 0.00001 0.67553	0.00807 0.60000 0.00005 0.05243 0.10965 0.06291 0.00000 0.09127 0.00002 0.67559	0.00808 0.00000 0.00117 0.04236 0.11897 0.06872 0.00000 0.08353 0.00005 0.67711	0.00824 0.00000 0.01111 0.02044 0.13418 0.05312 0.00000 0.08226 0.00009 0.69055	0.00832 0.01472 0.01559 0.00326 0.13361 0.02399 0.00000 0.10382 0.00009 0.69660	0.00832 0.02451 0.01567 0.00026 0.12676 0.00007 0.12057 0.00007 0.69670	0.00826 0.03445 0.01205 0.00001 0.11952 0.00121 0.00000 0.13268 0.00003 0.69180	0.00817 0.04539 0.00655 0.00000 0.11230 0.00008 0.00000 0.14312 0.00001 0.68438	0.00806 0.05777 0.00001 0.00000 0.10434 0.00000 0.14508 0.00921 0.00000 0.67553
CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) SON VEL,M/SEC	4.0000 58.8 2800.0 4580.3	11.1111 4.0000 58.8 2700.0 4400.3 4.8914-4 27.093 0.5590 1.1866 991.6	F/A= 0. 4.0000 58.8 2600.0 4220.3 5.0963-4 27.182 0.4841 1.2039 978.5	4.0000 58.8 2500.0 4040.3	PERCENT F 4.0000 58.8 2400.0 3860.3 5.5389-4 27.270 0.3986 1.2346 950.5	4.0000 58.8 2300.0 3680.3	.2569 F 4.0000 58.8 2200.0 3500.3 6.0489-4 27.299 0.3656 1.2521 915.9	HI= 1.318 4.0000 58.8 2100.0 3320.3 6.3383-4 27.305 0.3579 1.2571 896.6	4.0000 58.8 2000.0 3140.3	4.0000 .8.8 1900.0 2966.3 7.0066.3 7.310 0.3494 1.2635 854.9	4.0000 58.8 1800.0 2780.3 7.3961-4 27.311 0.3467 1.2658 832.9	4.0000 58.8 1700.0 2600.3 7.8313-4 27.311 0.3444 1.2679 810.1	4.0000 58.8 1600.0 2420.3 8.3208-4 27.311 0.3423 1.2699 786.5
MOLE FRACTIONS AR CO CO2 H H2 H20 N0 N0 OH	0.00796 0.09761 0.06240 0.00667 0.02689 0.11787 0.00368 0.66492 0.00129 0.00129	0.00800 0.09431 0.06651 0.00456 0.02608 0.12191 0.00228 0.66898 0.00061 0.00559	0.00803 0.00935 0.00307 0.02585 0.12444 0.00131 0.67168 0.00026 0.00349 0.00052	0.00804 0.09042 0.07125 0.00202 0.02607 0.12578 0.00070 0.67335 0.00010 0.00206 0.00021	0.00805 0.08928 0.07259 0.00129 0.02657 0.12628 0.00035 0.67434 0.00004	0.00806 0.08832 0.07366 0.00079 0.02727 0.12620 0.00016 0.67489 0.00001 0.00061	0.00806 0.08740 0.07465 0.00047 0.02812 0.12573 0.00007 0.67520 0.00000 0.00030	0.00806 0.08640 0.07568 0.00026 0.02911 0.12496 0.00003 0.67536 0.00001 0.00014	0.00806 0.08528 0.07681 0.00014 0.03024 0.12394 0.00001 0.67545 0.00000 0.00006	0.00806 0.08399 0.07811 0.00007 0.03155 0.12270 0.00000 0.67549 0.00000 0.00000	0.00806 0.08248 0.07962 0.00003 0.03307 0.12121 0.00000 0.67551 0.00000 0.00001 0.00000	0.00806 0.08071 0.08140 0.00001 0.03485 0.11944 0.00000 0.67552 0.00000 0.00000 0.00000	0.00806 0.07861 0.08350 0.00001 0.03695 0.11735 0.00000 0.67552 0.00000 0.00000 0.00000

ADD C(S) ADD H201L)

P. T. RH M. CF	CASE= , ATM , PSIA , PSIA , DEG k , DEG F +0, G/CC , MOL HT -9, CAL/(GIIK) MMA (S) N VEL,M/SEC	6.0000 88.2 1500.0 2240.3 1.2980-3 26.626		F/A= 0 6.0000 88.2 1300.0 1880.3 1.4977-3 26.627 0.3433 1.2779 720.2	.10000 6.0000 88.2 1200.0 1700.3 1.6225-3 26.627 0.3428 1.2785 692.1	PERCENT F 6,0000 88.2 1100.0 1520.3 1,7702-3 26,630 0,3459 1,2770 662.3	6.0000 88.2 1000.0 1340.3	.0909 F 6.0000 88.2 900.0 1160.3 2.2032-3 27.118 0.6806 1.1900 573.0	PHI= 1.465 6.0000 88.2 800.0 980.3 2.5701-3 28.119 0.6067 1.1927 531.2	6.0000 88.2 700.0 800.3	6.0000 88.2 600.0 620.3 3.5223-3 28.903 0.3232 1.2868 471.3	6.0000 88.2 500.0 440.3 4.2372-3 28.974 0.2887 1.3155 434.5	6.0000 88.2 400.0 260.3 E.2989-3 28.987 0.2751 1.3322 391.0	6.0000 88.2 300.0 80.3 8.5699-3 35.161 0.4217 1.1864 290.1	
AF CF CC CC H2	(S) 14))2 2 20(L) 20	0.00779 0.00000 0.00000 0.10313 0.07095 0.05981 0.00000 0.10581 0.00000 0.65260	0.00000 0.00000 0.09959 0.07440 0.06336 0.00000 0.10226 0.00001	0.00779 0.00000 0.00000 0.09530 0.07868 0.06763 0.00000 0.09758 0.00001 0.65260	0.00779 0.60000 0.00001 0.09007 0.08391 0.07284 0.00000 0.09276 0.00002 0.65261	0.00779 0.00000 0.00006 0.08357 0.09038 0.07913 0.00000 0.08600 0.0863	0.00780 0.00000 0.00083 0.07444 0.09902 0.08538 0.00000 0.07877 0.00007 0.65369	0.00794 0.00000 0.00917 0.05234 0.11569 0.07674 0.00000 0.07341 0.00013 0.66459	0.00805 0.02111 0.01682 0.01436 0.12757 0.04439 0.00000 0.09298 0.00014 0.67457	0.00810 0.03423 0.01991 0.00221 0.12459 0.01898 0.00000 0.11326 0.00013 0.67850	0.00809 0.04356 0.01906 0.00018 0.11784 0.00552 0.00000 0.12818 0.00009 0.67748	0.00802 0.05416 0.01460 0.00001 0.11030 0.00093 0.00000 0.14028 0.00005 0.67166	0.00792 0.06651 0.00813 0.00000 0.10218 0.00006 0.00000 0.15198 0.00002 0.66321	0,00779 0.08147 0.00000 0.00000 0.09251 0.00000 0.16125 0.00437 0.00000 0.65260	
P T T RI M CF	CASE= , ATM , PSIA , PSIA , DEG K , DEG F HO, G/CC , MOL WT P, CAL/(G)(K) MMA (S) N VEL,M/SEC	10,000 147,0 2800,0 4580,3 1,1517-3 26,461		F/A= 0 10.000 147.0 2600.0 4220.3 1.2450-3 26.561 4200 1.2318 1601.3	10.000 147.0 2500.0 4040.3	PERCENT F 10.000 147.0 2400.0 3860.3 1.3508-3 26.603 0.3819 1.2494 968.1	TUEL = 9 10.000 147,0 2300.0 3680.3 1.4101-3 26.613 0.3717 1.2552 949.7	10,000 147,0 2200,0 3500,3	PHI= 1.465 10.000 147.0 2100.0 3320.3 1.5450-3 26.623 0.3599 1.2629 910.1	10.000 147.0 2000.0 3140.3	10.000 117.0 1900.0 2960.3 1.7078-3 26.626 0.3537 1.2678 867.3	10.000 147.0 1800.0 2780.3 1.8027-3 26.626 0.35:4 1.2698 844.8	10.000 147.0 1700.0 2600.3 1.9087-3 26.626 0.3494 1.2717 821.6	10.000 147.0 1600.0 2420.3 2.0280-3 26.626 0.3476 1.2735 797.6	
MC CC CC H H2 H2 NF NC N2 OF	0 02 2 20 43 0 2	0.00774 0.12235 0.05055 0.0555 0.00525 0.04170 0.11813 0.00000 0.00149 0.64779 0.00033	0.05211 0.00366 0.04202 0.11975 0.00000 0.00087 0.64958 0.00015 0.00273	0.00777 0.12024 0.05331 0.00249 0.04259 0.12055 0.00000 0.00048 0.65076 0.00006 0.00167 0.00007	0.00778 0.11938 0.05434 0.00165 0.04332 0.12075 0.00000 0.00025 0.65150 0.00002 0.00097	0.00778 0.11852 0.05531 0.00105 0.04418 0.12050 0.00000 0.00012 0.65197 0.00001 0.00054 0.00001	0.00779 0.11760 0.05629 0.0065 0.04515 0.11993 0.00000 0.65224 0.00000 0.00028 0.00000	0.00779 0.11658 0.05736 0.00038 0.04624 0.11908 0.00000 0.00002 0.65241 0.00000 0.00014 0.00000	0.00779 0.11541 0.05855 0.00021 0.04746 0.11800 0.00000 0.00001 0.65250 0.00000 0.00006 0.00006	0.00779 0.11406 0.05991 0.00011 0.04884 0.11670 0.00000 0.00000 0.65255 0.00000 0.00003 0.00000	0.00779 0.11251 0.06147 0.00006 0.05042 0.11517 0.00000 0.65258 0.00000 0.00001 0.00000	0.00779 0.11070 0.06328 0.0003 0.05224 0.11337 0.00000 0.65259 0.00000 0.00000 0.00000	0.00779 0.10859 0.06540 0.0001 0.05436 0.11126 0.00000 0.65259 0.00000 0.00000 0.00000	0.00779 0.10509 0.06789 0.00000 0.05685 0.10877 0.00001 0.00000 0.65260 0.00000 0.00000	•

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CASE= 0
                0/F≈ 0.0000
                                 F/A = 0.00000
                                                 PERCENT FUEL= 0.0000
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P. ATM
                1.0000
                         1.0000
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P. PSIA
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T, DEG K
                                                                                                                 1700.0
                2860.6
                         2700.0
                                  2600.0
                                           2500.0
                                                   2400.0
                                                            2300.0
                                                                     2200.0
                                                                              2100.0
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                                                                                               1900.0
                                                                                                        1800.0
                                                                                                                          1600.0
                                          4040.3
                                                   3860.3
                                                            3680.3
                                                                     3500.3
                                                                                      3140.3
T, DEG F
                4580.3
                         4400.3
                                 4220.3
                                                                              3320.3
                                                                                               2960.3
                                                                                                        2780.3
                                                                                                                 2600.3
                                                                                                                          2420.3
RHO, G/CC
              1.2462-4 1.2972-4 1.3508-4 1.4074-4 1.4679-4 1.5330-4 1.6035-4 1.6803-4 1.7646-4 1.8577-4 1.9610-4 2.0763-4 2.2061-4
                28,633
                         28,740
                                 28.818
                                          28.872
                                                   28,909
0.3731
                                                            28.932
                                                                     28.947
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M. MOL HT
                                                                                                                 28.964
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CP. CAL/(G)(K)
                0.5238
                         0.4731
                                 0.4316
                                          0.3986
                                                            0.3538
                                                                     0.3393
                                                                              0.3284
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GAMMA (S)
                1.1918
                         1.2026
                                  1.2144
                                           1.2265
                                                   1,2382
                                                            1.2490
                                                                     1.2586
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                                                                                               1,2811
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                                                                                                                          1.2987
SON VEL.M/SEC
                 984.4
                          969.2
                                   954.5
                                           939.7
                                                    924.5
                                                             908.6
                                                                      891.8
                                                                               874.1
                                                                                        855.4
                                                                                                835.9
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                                                                                                                  794.3
                                                                                                                           772.3
MOLE FRACTIONS
AR
               0.00922
                       0.00925 0.00928
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CO
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C02
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N02
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                        0.75953 0.76360
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N2
               0.75465
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               0.02280
                        0.01543 0.01009
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                                                  0.00383 0.00221 0.00121 0.00062 0.00030
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               0.17840
                        0.18484 0.19004
                                         0.19420 0.19752 0.20016 0.20226 0.20395
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                                                                                              0.20639
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                                                                                                                         0.20844
     CASE= 0 0/F= 0,0000
                                 F/A = 0.00000
                                                 PERCENT FUEL= 0.0000
                                                                           PHI= 0.0000
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P, PSIA
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T, DEG K
                1500.0
                        1400.0
                                  1300.0
                                           1200.0
                                                            1000.0
                                                                      900.0
                                                                               800.0
                                                                                        700.0
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T, DEG F
                                                           1340.3
                2240.3
                         2060.3
                                 1880.3
                                          1700.3
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                                                                    1160.3
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                                                                                                620.3
                                                                                                         440.3
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RHO, G/CC
              2.3532-4 2.5213-4 2.7152-4 2.9415-4 3.2089-4 3.5298-4 3.9220-4 4.4122-4 5.0426-4 5.8830-4 7.0596-4 8.8245-4 1.1766-3
                         28.964
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M, MOL NT
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CP, CAL/(GITE)
                         0.2898
                                                                                       0.2569
                0.2940
                                 0.2856
                                           0.2815
                                                   0.2773
                                                            0.2730
                                                                     0.2681
                                                                              0.2626
                                                                                               0.2512
                                                                                                                 0.2422
                                                                                                        0.2461
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GAMMA (S)
                1.3044
                         1.3102
                                  1,3161
                                           1.3223
                                                   1.3287
                                                            1.3357
                                                                     1.3440
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                                                                                       1.3644
                                                                                               1.3757
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                                                                                                                          1,3999
SON VEL, M/SEC
                 749.4
                          725.6
                                   700.8
                                                    647.7
                                                             619.2
                                                                      589.3
                                                                               557.5
                                           674.9
                                                                                        523.6
                                                                                                486.8
                                                                                                         446.1
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MOLE FRACTIONS
AR
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NO
              0.00131 0.00078 0.00043
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N02
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N2
              0.78023 0.78050 0.78068
                                         0.78078 0.78084 0.78087 0.78089 0.78089 0.78089 0.78089
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               0.20882 0.20909 0.20927
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                                                                                                       0.20949
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CASE= CP, ATM P, PSIA T, DEG K T, DEG K T, DEG CC N, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	1.5000 1.5000 22.0 22.0 1500.0 1400.0 2240.3 2060.3	F/A= 0.01000 1.5000 1.5000 22.0 22.0 1300.0 1200.0 1880.3 1700.3 4.0732-4 4.4126-4 28.967 28.967 0.2907 0.2863 1.3090 1.3151 698.9 673.0	1.5000 1.5000 22.0 22.0 1100.0 1000.0 1520.3 1340.3	.9901 PHI= 0.146 1.5000 1.5000 22.0 22.0 900.0 800.0 1160.3 980.3 5.8825-4 6.6190-4 28.967 28.967 0.2723 0.2666 1.3369 1.3466 587.7 556.1	5 1,5000 1,5000 22,0 22,0 700,0 600,0 800,3 620,3 7,5645-4 8,8253-4 28,967 28,967 0,2606 0,2546 1,3574 1,3688 522,2 485,5	22.0 22.0 500.0 400.0 440.3 260.3 1.0590-3 1.3238-3 1 28.967 28.967 0.2492 0.2448 1.3799 1.3893	1.5000 22.0 300.0 80.3 .7651-3 28.967 0.2422 1.3952 346.6
MCLE FRACTIONS AR CO2 H20 NO NO2 N2 OH	0.00923 0.00923 0.02088 0.02088 0.01961 0.01962 0.00120 0.00072 0.00001 0.00001 0.77262 0.77287 0.00003 0.00001 0.17642 0.17667	0.00923 0.00923 0.02088 0.0298 0.01962 0.01962 0.00039 0.00020 0.00000 0.00000 0.77303 0.77313 0.00000 0.0000 0.17683 C.17693	0.00923 0.00923 0.02088 0.02068 0.01962 0.01962 0.00009 0.00003 0.00000 0.00000 0.77319 0.77321 0.00000 0.00000 0.17699 0.17702	0.00923 0.00923 0.02098 0.02088 0.01962 0.01962 0.00001 0.00000 0.00000 0.00000 0.77322 0.77323 0.00000 0.00000 0.17703 0.17703	0.00923 0.00923 0.02688 0.02088 0.01962 0.01962 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.00000 0.00000 0.17703 0.17703	0.02088 0.02088 0.01962 0.01962 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.00000 0.00000	0.00923 0.02088 0.01962 0.00000 0.00000 0.77323 0.00000 0.17703
CASE= C P, ATM P, PSIA T, DEG k T, DEG K RHO, G/CC M, HOL WT CP, CAL/(GILK) GAMMA (S) SON VEL,M/SEC	0 0/F=100.0000 2.0000 2.0000 29.4 29.4 2800.0 2700.0 4580.3 4400.3 2.4880-4 2.5506-4 28.582 28.698 0.5476 0.4971 1,1851 1,1945 982.5 966.6	28.785 28.847 0.4539 0.4183 1.2053 1.2167	2.0000 2.0000 29.4 29.4 2400.0 2300.0 3860.3 3680.3	28.939 28.951 0.3515 0.3387 1.2491 1.2581	5 2.0000 2.0000 29.4 29.4 2000.0 1900.0 3140.3 2960.3 5.5290-4 3.7153-4 28.958 28.962 0.3289 0.3210 1.2660 1.2731 852.6 833.3	29.4 29.4 1800.0 1700.0 2780.3 2600.3 3.9220-4 4.1529-4 4 2.28.965 28.966 0.3146 0.3090 1.2796 1.2857	2.0000 29.4 1600.0 2420.3 4126-4 28.967 0.3040 1.2916 770.2
MOLE FRACTIONS AR CO LO2 H HO2 H2 H20 N0 N0 N0 N0 O O O O O O O O O O O O O	0.00911 0.00915 0.00440 0.00306 0.01620 0.01763 0.00152 0.00078 0.00002 0.00001 0.00053 0.0047 0.01376 0.02802 0.0002 0.00002 0.74707 0.75203 0.01487 0.01044 0.00661 0.00786 0.15173 0.15628	0.00200 0.00124 0.01875 0.01955 0.00044 0.00023 0.00001 0.00001 0.00027 0.00018 0.01590 0.01636 0.02437 0.2008 0.00002 0.00002 0.75618 0.75959 0.00655 0.00412 0.00652 0.00477	0.00012 0.00005 0.00001 0.00001 0.0011 0.00006 0.01763 0.01823 0.01760 0.01457 0.00002 0.00002 0.76239 0.76459 0.00248 0.00143 0.00354 0.00254	0.00175 0.00116	0.00923 0.00923 0.00005 0.00002 0.02083 0.02086 0.00000 0.00000 0.00000 0.00000 0.01924 0.0194 0.00729 0.0054 0.00020 0.00001 0.76934 0.77032 0.00020 0.00001 0.00073 0.00044 0.00073 0.0044	2 0.00001 0.00000 0.00007 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00001 0.00001 0.00001 0.077116 0.77179 0.00004 0.00001 0.00004 0.00001 0.00005 0.00001	0.00923 0.00000 0.02088 0.00000 0.00000 0.00000 0.01959 0.00189 0.00001 0.77227 0.00000 0.00000 0.00006 0.17606

P, ATM 3.0000 P, PSIA 44.1 T, DEG K 1500.0 T, DEG F 2240.3	50.0000 F/A= 0.02000 3.0000 3.0000 3.0000 44.1 44.1 44.1 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 7.5552-4 8.1471-4 8.8261-4 28.969 28.970 28.970 0.2999 0.2955 0.2911 1.2965 1.3023 1.3083 721.8 697.1 671.3	PERCENT FUEL= 1.9608 3.0000 3.0000 3.000 44.1 44.1 44.1 1100.0 1000.0 900. 1520.3 1340.3 1160. 9.6284-4 1.0591-3 1.1768- 28.970 28.970 28.97 0.2865 0.2818 0.276 1.3147 1.3218 1.330 644.3 615.9 586.	1 44.1 44.1 4.0 0 800.0 700.0 600 3 980.3 800.3 620 3 1.3239-3 1.5130-3 1.765. 0 28.969 28.969 28.9 0 0.2704 0.2642 0.26 2 1.3399 1.3508 1.31	.1 44.1 44.1 .0 500.0 400.0 300.0 .3 440.3 260.3 80.3 .3 2.1183-3 2.6478-3 3.6307-3 .70 28.970 28.970 29.793 .79 0.2522 0.2474 0.4956 .23 1.3737 1.3837 1.2255
MOLE FRACTIONS AR 0.00914 C02 0.04106 H201L1 9.00000 H20 0.03885 N0 0.00108 N02 0.00001 N2 0.76517 OH 0.00003 02 0.14465	0.00914 0.00914 0.00914 0.04106 0.04106 0.04166 0.00000 0.00000 0.00000 0.03886 0.03887 0.03887 0.00065 0.00036 0.00018 0.00001 0.00001 0.00000 0.76539 0.76554 0.76563 0.00001 0.00000 0.00000 0.14488 0.14563 0.14512	0.00914 0.00914 0.0091 0.04106 0.04106 0.0410 0.00000 0.00000 0.0000 0.03887 0.03887 0.0388 0.00008 0.00003 0.0000 0.00000 0.00000 0.0000 0.76568 0.76570 0.7657 0.00000 0.00000 0.0000 0.14517 0.14520 0.1452	6 0.04106 0.04106 0.04 0 0.00000 0.00000 0.0007 7 0.03887 0.03887 0.033 1 0.00000 0.00000 0.000 0 0.00000 0.00000 0.000 1 0.76571 0.76571 0.765 0 0.00000 0.00000 0.000	06 0.04106 0.04106 0.04106 00 0.00000 0.00000 0.02763 187 0.03887 0.03887 0.01123 100 0.00000 0.00000 0.00000 100 0.00000 0.00000 0.00000 172 0.76572 0.76572 0.76572 100 0.00000 0.00000 0.00000
P, ATM 4.0000 P, PSIA 58.8 T, DEG K 2800.0 T, DEG F 4580.3	50.0000 F/A= 0.02000 4.0000 4.0000 4.0000 58.8 58.8 58.8 2700.0 2500.0 2500.0 4400.3 4220.3 4040.3 5.1840-4 5.3988-4 5.6263-4 28.713 28.795 28.855 0.4540 0.4197 1.1933 1.2038 1.2148 965.9 950.6 935.5	PERCENT FUEL= 1.9608 4.0000 4.58.8 58.8 58. 2400.0 2300.0 2200. 3860.3 3600.3 3500. 5.8691-4 6.1302-4 6.4129- 28.896 28.924 28.94 0.3924 0.3714 0.355 1.2258 1.2362 1.245 920.1 904.0 887.	8 58.8 58.8 59.8 59.0 2000.0 1900 2100.0 2000.0 1900 3 3320.3 3140.3 2934 4 6.7209-4 7.0587-4 7.431 2 28.954 28.954 28.961 28.0 334 0.334 0.336 6 1.2539 1.2613 1.26	1.8 58.8 58.8 58.8 1.0 1800.0 1700.0 16000.1 1.3 2780.3 2600.3 2420.3 1-4 7.8447-4 8.3066-4 8.8259-4 165 28.967 28.968 28.969 158 0.3195 0.3140 0.3090 1.80 1.2741 1.2799 1.2855
MOLE FRACTIONS AR 0.00903 C0 0.00707 C02 0.03347 H 0.00126 H02 0.00095 H20 0.03092 N0 0.2878 N02 0.0003 N2 0.74162 OH 0.01173 O2 0.12555	0.00906 0.00909 0.00911 0.00484 0.00315 0.00194 0.03586 0.03767 0.03896 0.00073 0.00040 0.00021 0.0002 0.00002 0.00031 0.0379 0.03432 0.03554 0.02532 0.02198 0.01880 0.0003 0.00003 0.00002 0.74627 0.75011 0.75327 0.00644 0.00419 0.00553 0.00939 0.00731 0.00554 0.12860 0.13129 0.13367	0.00912 0.00913 0.0091 0.00113 0.00062 0.0003 0.03983 0.04037 0.0407 0.00011 0.00005 0.0000 0.00001 0.00001 0.0000 0.03650 0.03723 0.0377 0.01584 0.01312 0.0106 0.00002 0.00002 0.0000 0.75585 0.75795 0.7596 0.00159 0.00092 0.0001 0.00407 0.00290 0.0019 0.13576 0.13759 0.1391	2 0.00016 0.00007 0.000 0 0.04088 0.04098 0.04 2 0.00001 0.00000 0.001 1 0.00000 0.00000 0.000 6 0.0003 0.00001 0.000 5 0.00847 0.00556 0.00 2 0.00002 0.00002 0.000 6 0.76105 0.76219 0.76 0 0.0026 0.00013 0.000 9 0.00131 0.00083 0.000	003 0.00001 0.00000 0.00000 03 0.04105 0.04106 0.04106 000 0.00000 0.00000 0.00000 000 0.00000 0.00000 0.00000 001 0.00000 0.00000 0.00000 000 0.03872 0.03879 0.03883 095 0.00361 0.00254 0.00170 002 0.00001 0.00001 0.00001 010 0.76384 0.76441 0.76485 010 0.00022 0.00011 0.00000 010 0.00028 0.00015 0.00007

CASE= 0 0/F P, ATM 6.000 P, PSIA 88. T, DEG K 1500. T, DEG F 2240. RHO, G/CC 1.4123 M, MDL WT 28.97 CP, CAL/(GI(K) 0.309 GAMMA (S) 1.285 SON VEL,M/SEC 743.	0 6.0000 6.000 88.2 88.2 0 1400.0 1300. 3 2060.3 1880. 3 1.5132-3 1.6296- 2 28.972 28.97. 2 0.3047 0.300 1 1.2905 1.296	88.2 88. 0 1200.0 1100. 3 1700.3 1520. 3 1.7654-3 1.9259- 2 28.972 28.97 3 0.2957 0.291 1 1.3020 1.306	0 6.0000 6 0 1000.0 3 1340.3 3 2.1184-3 2.3 2 28.972 2 0 0.2860 4 1.3154	5.0000 6.0000 88.2 88.2 900.0 800.0 1160.3 980.3	6.0000 6.0000 88.2 88.2 700.0 600.0 800.3 620.3	6.0000 6.0000 88.2 88.2 500.0 400.0 440.3 260.3 4.2369-3 5.2961-3 28.972 28.972 0.2551 0.2499 1.3678 1.3784 443.0 397.8	88.2 300.0 80.3 7.4509-3 30.570 0.3813 1.2521
MOLE FRACTIONS AR 0.0090 C02 0.0608 H20(L) 0.0000 H20 0.0577 N0 0.0000 N02 0.0000 N2 0.7578 OH 0.0000 02 0.1135	6 0.06086 0.0608 0.00000 0.0000 2 0.05773 0.0577 5 0.00057 0.0003 1 0.00001 0.0000 6 0.75806 0.7581 3 0.00001 0.0000	6 0.06066 0.0608 0.00000 0.0000 4 0.05774 0.0577 1 0.00016 0.0000 1 0.00000 0.0000 9 0.75827 0.7583 0 0.00000 0.0000	6 0.06086 0. 0 0.60000 0. 4 0.05774 0. 7 0.00003 0. 0 0.00000 0. 1 0.75833 0. 0 0.00000 0.	.00995 0.00905 .06086 0.06086 .00000 0.00000 .05774 0.05774 .00001 0.00000 .00000 0.00000 .75834 0.75835 .00000 0.00000 .11400 0.11400	0.00905 0.00905 0.06086 0.06086 0.00000 0.00000 0.5774 0.05774 0.00000 0.00000 0.00000 0.00000 0.75835 0.75835 0.00000 0.00000 0.11400 0.11400	0.00905 0.00905 0.06086 0.06086 0.00000 0.00000 0.05774 0.05774 0.00000 0.00000 0.75835 0.75835 0.00000 0.00000 0.11400 0.11400	0.06086 0.05227 0.00547 0.00000 0.00000 0.75835 0.00000
CASE= 0 0/F P, ATM 10.00 P, PS1A 147. T, DEG K 2800. T, DEG F 4580. RHO, G/CC 1.2476- M, MOL WT 28.66 CP, CAL//GJ/K1 0.518 GAMMA (S) 1.187 SON VEL,M/SEC 982.	0 10.000 10.00 0 147.0 147.0 2700.0 2600.3 4400.3 4220.3 3 1.2980-3 1.3512- 5 28.758 28.82 8 0.4764 0.440 9 1.1969 1.206	0 147.0 147.0 2500.0 2400.3 3 4040.3 3860.3 3 1.4076-3 1.4680-7 7 28.876 28.91 0.4109 0.387 9 1.2170 1.226	0 10.000 1 0 147.0 0 2300.0 2 3 3680.3 3 3 1.5331-3 1.6 1 28.934 2 5 0.3695 0 9 1.2360	26 PHI= 0.4391 10.000 10.000 147.0 147.0 2200.0 2100.0 3500.3 3320.3 5036-3 1.6805-3 28.949 28.959 0.3556 0.3449 1.2442 1,2515 886.7 868.7	10.000 10.000 147.0 147.0 2000.0 1900.0 3140.3 29.00.3 1,7649-3 1,8580-3 28,964 28,968 0,3365 0,3296 1,2580 1,2639 849.8 830.2	10.000 10.000 147.0 147.0 1800.0 1700.0 2780.3 2600.3 1.9614-3 2.0768-3 28.970 28.971 0.3237 0.3185 1.2695 1.2747 809.8 788.6	147.0 1600.0 2420.3 2.2067-3 28.972 0.3137 1.2799
MOLE FRACTIONS AR CO 0.0089 CO2 0.0523 H 0.0008 H02 0.0001 H2 0.0010 N0 0.0550	7 0.00531 0.0034 4 0.05510 0.0571 5 0.00049 0.0002 3 0.00003 0.0000 0 0.0075 0.005 0 0.05188 0.0533 2 0.02237 0.0193 3 0.00003 0.0000 5 0.74154 0.7448 0 0.00361 0.0023 8 0.00884 0.0068	1 0.00208 0.0012 4 0.05857 0.0595 7 0.00014 0.0000 2 0.000032 0.0000 9 0.05459 0.0555 3 0.00033 0.0003 3 0.00003 0.0004 4 0.74754 0.7497 5 0.00147 0.0005 3 0.00513 0.0037	1 0.00067 0.00067 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.000003 0.00003 0.000003 0.000051 0.000051 0.000051 0.000056 0	.00905 0.00905 .00034 0.00017 .06046 0.06066 .00001 0.00001 .00001 0.00003 .05671 0.05707 .00938 0.00745 .00003 0.00002 .75304 0.75426 .00028 0.00120 .00182 0.00120 .10880 0.10992	0.00905 0.00905 0.00008 0.00003 0.06077 0.06082 0.00000 0.00000 0.00000 0.00000 0.00573 0.05750 0.0573 0.05750 0.05555 0.75605 0.00007 0.00003 0.00007 0.00003 0.00007 0.00003 0.11168	0.00905 0.00905 0.00001 0.00000 0.06084 0.06085 0.00000 0.00000 0.00000 0.00000 0.05760 0.05767 0.00318 0.00224 0.00002 0.00002 0.75669 0.75720 0.00014 0.00000 0.00026 0.00014 0.11232 0.11283	0.00000 0.06086 0.00000 0.00000 0.00000 0.05771 0.00150 0.00001 0.75758 0.00007

CASE= 0 0/F= 25.0000 P, ATM 15.000 15.000 P, PSIA 220.4 220.4 T, DEG K 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 3.5310-3 3.7832-3 4 M, MOL WT 28.974 28.974 CP, CAL/(GILK) 0.3138 0.3094 GAMMA (S) 1.2797 1.2848 SON VEL, M/SEC 742.2 718.4	15.000 15.000 15.0 220.4 220.4 220 1300.0 1200.0 1100 1880.3 1700.3 1520	1,4 220.4 220.4 220.4 1,0 1000.0 900.0 800.0 1,3 1340.3 1160.3 980.3 1-3 5.2965-3 5.8850-3 6.6207-3 174 28.974 28.974 28.974 154 0.2902 0.2843 0.2779 124 1.3094 1.3179 1.3276	15,000 15,000 15,00 220.4 220.4 220. 700.0 600.0 500. 800.3 620.3 440.	4 220.4 0 400.0 300.0 3 260.3 80.3 2 1.3241-2 1.9068-2 4 28.974 31.294 0.2523 0.3192 2 1.3733 1.2710
CO2	0.00897 0.00997 0.008 0.08027 0.08027 0.080 0.00000 0.00000 0.000 0.07625 0.07625 0.076 0.00027 0.00013 0.000 0.75098 0.75105 0.751 0.00000 0.00000 0.000 0.08325 0.08332 0.083	27	0.00697 0.00897 0.0089 0.02027 0.08027 0.0802 0.00000 0.00000 0.0000 0.07625 0.07625 0.0762 0.00000 0.00000 0.0000 0.00000 0.00000 0.0000 0.75112 0.75112 0.7511 0.00000 0.00000 0.0000 0.00339 0.08339 0.0833	77 0.08027 0.08027 00 0.00000 0.07411 5 0.07625 0.00214 00 0.00000 0.00000 00 0.00000 0.00000 2 0.75112 0.75112 00 0.00000 0.00000
CASE= 0 0/F= 25.0000 P, ATM 20.000 20.000 P, PSIA 293.9 293.9 T, DEG K 2800.0 2700.0 T, DEG F 4580.3 4400.3 RHO, G/CC 2.4978-3 2.5980-3 3 M, MOL WT 28.695 28.780 CP, CAL/IG/IK) 0.5093 0.4695 GAMMA (S) 1.1890 1.1979 SON VEL,M/SEC 982.2 966.6	20.000 20.000 20.0 293.9 293.9 293 2600.0 2500.0 2400 4220.3 4040.3 3860	1.9 293.9 293.9 293.9 1.0 2300.0 2200.0 2100.0 1.3 3680.3 3500.3 3320.3 1-3 3.0668-3 3.2078-3 3.3615-3 119 28.940 28.954 28.963 166 0.3699 0.3572 0.3474 164 1.2348 1.2423 1.2489	20,000 20,000 20,000 293,9 293,9 293, 2000.0 1900.0 1800, 3140.3 29,0.3 2780, 3,5302-3 3,7164-3 3,9231- 28,968 28,971 28,97 0,3336 0,3333 0,327 1,2547 1,2601 1,265 848,7 828,9 808.	9 293.9 293.9 0 1700.0 1600.0 3 2600.3 2420.3 3 4.1540-3 4.4137-3 3 28.974 28.974 8 0.3229 0.3183 11 1.2700 1.2748
CÓ2 0.07071 0.07384 H 0.00064 0.00037 H02 0.00004 0.00003 H2 0.00125 0.00085 N0 0.02177 0.01903 N02 0.00003 N2 0.73297 0.73654 0 0.00218 0.00218 0H 0.01020 0.00802	0.00893 0.00894 0.008 0.00377 0.00230 0.001 0.07614 0.07774 0.078 0.00020 0.00011 0.000 0.00002 0.00012 0.000 0.00015 0.00035 0.000 0.07215 0.07330 0.074 0.01646 0.01405 0.011 0.00003 0.00003 0.000 0.73946 0.74184 0.743 0.00141 0.0089 0.000 0.00616 0.00462 0.003 0.007470 0.07582 0.076	33 0.00073 0.00038 0.00018 (179 0.07945 0.07984 0.08006 (179 0.00002 0.00001 0.00000 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.07564 0.07531 0.07564 0.07531 0.0003 0.000003 0.000003 0.000003 0.00000003 0.00003 0.00003 0.00003 0.00003 0.00003 0.00003 0.00003 0.00	0.00897 0.00897 0.0089 0.00008 0.00003 0.0000 0.08017 0.08023 0.0802 0.00000 0.00000 0.0000 0.00000 0.00000 0.0000 0.07588 0.07603 0.076 0.00491 0.00371 0.0027 0.00002 0.00002 0.0000 0.74848 0.74916 0.7497 0.00004 0.00002 0.0000 0.00008 0.00041 0.0002 0.00008 0.00041 0.0002	11 0.00000 0.00000 6 0.08027 0.08027 0 0.00000 0.00000 0 0.00000 0.00000 0 0.00000 0.00000 3 0.07619 0.07622 11 0.00190 0.00128 22 0.00002 0.00001 11 0.75014 0.75047 0.00000 0.00000 3 0.00001 0.00000

P, ATM 30.000 P, PSIA 440.9 T, DEG K 1500.0 T, DEG F 2240.3	20,0000 F/A= 0,05000 30,000 30,000 30,000 440,9 440,9 440,0 1400.0 1300.0 1200,0 2060.3 1880.3 1700.3 7,5671-3 8,1492-3 8,2283-3 28,977 28,977 28,977 0,3139 0,3094 0,3047 1,2796 1,2848 1,2905 7,16.9 692.3 666.6	PERCENT FUEL= 4, 30,000 30,000 440.9 440.9 1100.0 1000.0 1520.3 1340.3 9,6309-3 1,0594-2 28,977 28,977 0,2997 0,2943 1,2968 1,3038 639.8 611.6	7619 PHI= 0.7327 30.000 30.000 30.000 440.9 440.9 440.9 900.0 800.0 700.0 1160.3 980.3 800.3 1.7771-2 1.3242-2 1.5134-2 28.977 28.977 28.977 0.2882 0.2816 0.2746 1.3122 1.3220 1.3329 582.1 550.9 517.4	30.000 30.000 30.000 30.000 440.9 440.9 440.9 440.9 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 1.7657-2 2.1188-2 2.6959-2 3.8950-2 28.977 28.977 29.495 31.961 0.2675 0.2608 1,0780 0.3043 1.3447 1.3568 1,2030 1.2683 481.2 441.2 368.3 314.6
MOLE FRACTIONS AR CO2 0.09832 H20(L: 0.00000 H20 0.09440 N0 0.00065 N02 0.00001 N2 0.74370 OH 0.00002 O2 0.05301	0.00888 0.00888 0.00988 0.09932 0.09932 0.09952 0.00000 0.00000 0.00000 0.93441 0.09441 0.09442 0.00039 0.00021 0.00011 0.00001 0.00001 0.00000 0.74383 0.74392 0.74397 0.00001 0.00000 0.00000 0.05315 0.05324 0.05329		0.00888	0.00888 0.00888 0.00888 0.00888 0.09932 0.09932 0.09932 0.09932 0.00000 0.00000 0.01757 0.09337 0.09442 0.09442 0.07685 0.00100 0.00000 0.00000 0.00000 0.00000 0.74403 0.74403 0.74403 0.74403 0.00000 0.00000 0.00000 0.00000 0.05335 0.05335 0.05335 0.05335
P, ATM 40.000 P, PSIA 587.8 T, DEG K 2800.0 T, DEG F 4580.3	20.0000 F/A= 0.05000 40.000 40.000 40.000 587.8 587.8 587.8 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 5.1990-3 5.4101-3 5.6347-3 28.796 28.856 28.898 0.4649 0.4327 0.4665 1.1985 1.2079 1.2172 966.6 951.3 935.7	PERCENT FUEL= 4. 40.000 40.000 587.8 587.8 2400.0 2300.0 3800.3 3680.3 5.8754-3 6.1349-3 28.927 28.946 0.3859 0.3703 1.2260 1.2339 919.6 902.9	7619 PHI= 0.7327 40.000 40.000 40.000 587.8 587.8 587.8 2200.0 2100.0 2000.0 3500.3 3320.3 3140.3 6.4166-3 6.7239-3 7.0612-3 28.959 28.966 28.971 0.3585 0.3495 0.3424 1.2407 1.2467 1.2520 885.3 866.9 847.7	40.000 40.000 40.000 40.000 587.8 587.8 587.8 587.8 1900.0 1800.0 1700.0 1600.0 29.0.3 2780.3 2600.3 2420.3 7.4336-3 7.8470-3 8.3088-3 8.8282-3 28.974 28.975 28.976 28.977 0.3366 0.3315 0.3269 0.3226 1.2567 1.2612 1.2656 1.2701 827.8 807.1 785.7 763.6
MOLE FRACTIONS AR CO 0.00880 CO 0.00972 CO2 0.08871 H 0.00048 H02 0.00003 H2 0.00140 H20 0.08758 N0 0.01740 ND2 0.00003 N2 0.72862 O 0.0184 OH 0.00667 O2 0.04671	0.00883 0.00885 0.00886 0.00652 0.00417 0.00254 0.09218 0.09474 0.09651 0.00008 0.00015 0.00008 0.00003 0.00002 0.00039 0.0005 0.00063 0.00039 0.0834 0.09072 0.09138 0.01514 0.01305 0.01113 0.0003 0.00003 0.0003 0.73181 0.73437 0.73642 0.01023 0.00080 0.00050 0.00677 0.00518 0.004787	0.09258 0.09317 0.00936 0.00775 0.00003 0.00002 0.73805 0.73935 0.00030 0.00017 0.00282 0.00199	0.00888	0.00888 0.00888 0.00888 0.00888 0.00004 0.00001 0.00000 0.00000 0.09927 0.09930 0.09932 0.09932 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.09423 0.09431 0.09436 0.09439 0.00029 0.00002 0.00001 0.00002 0.74247 0.74291 0.74325 0.74351 0.00001 0.00001 0.00002 0.00002 0.00034 0.00019 0.00010 0.00052 0.05279 0.05222 0.05256 0.05282

ADD H201L1

CASE= 0 0/F= P, ATM 50,000 P, PSIA 734.8 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 1.1772-2 M, MOL WT 28.979 CP, CAL/(G/K) 0.3224 GAHMA (5) 1.2702 SON VEL, M/SEC 739.3	734.8 734.8 1400.0 1300.3 2060.3 1880.3 1.2613-2 1.3583-2 28.979 28.979 0.3182 0.3137 1.2747 1.2798	.06000 PERCENT 50,000 50,00 734.8 734. 1200.0 1100. 1700.3 1520. 1,4715-2 1,6053- 28.979 28.97 0.3089 0.303 1,2853 1,291 665.2 638.	0 50.000 50.000 734.8 734.8 0 1000.0 900.0 3 1340.3 1160.3 2 1.7658-2 1.9620-2 28.979 28.979 8 0.2983 0.2920 5 1.2985 1.306	734.8 734.8 800.0 700.0 980.3 800.3 2.2073-2 2.5226-2 1 28.979 28.979 0 0.2851 0.2779	734.8 734.8 600.0 500.0 620.3 440.3 2.9430-2 3.5316-2 28.979 28.979 0.2706 0.2635	50.000 50.000 734.8 734.8 400.0 300.0 260.3 80.3 4.7393-2 6,6256-2 31.111 32.620 0.7307 0.3032 1.2068 1.2581 359.2 310.2
MOLE FRACTIONS AR 0.00880 C02 0.11801 H20 0.11223 N0 0.00003 N02 0.00001 N2 0.73685 OH 0.0002 02 0.02365	0.11802 0.11802 0.00000 0.000000 0.11224 0.11224 0.00026 0.00014 0.00000 0.00000 0.73700 0.00001 0.00000	0.00P90 0.0088 0.11802 0.1180 0.00000 0.0000 0.11224 0.1122 0.00007 0.0000 0.00000 0.0000 0.73703 0.7370 0.00000 0.0000 0.02384 0.0238	2 0.11802 0.1180; 0.00000 0.00000 4 0.11224 0.11224 3 0.00001 0.00000 0 0.00000 0.00000 5 0.73706 0.7370 0 0.00000 0.00000	0.11802 0.11802 0.00000 0.00000 0.11224 0.11224 0.00000 0.00000 0.00000 0.00000 0.73707 0.73707 0.00000 0.00000	0.11802 0.11802 0.00000 0.00000 0.11224 0.11224 0.00000 0.00000 0.00000 0.00000 0.73707 0.73707 0.00000 0.00000	0.00880 0.00880 0.11802 0.11802 0.06852 0.11162 0.004372 0.00062 0.00000 0.00000 0.00000 0.00000 0.37007 0.3707 0.00000 0.00000 0.02388 0.02388
CASE= 0 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 5.8946-5 M, MOL WT 27.087 CP, CAL/(GI(K) 1.1349 GAMMA (S) 1.1341 SON VEL, M/SEC 987.3	7.3 7.3 2700.0 2600.0 4400.3 4220.3 6.2077-5 6.5305-5 27.507 27.865 1.0162 0.9025 1.1359 1.1396	0.5000 0.500 7.3 7. 2500.0 2400. 4040.3 3860.	0 0.5000 0.5000 3 7.3 7.3 0 2300.0 2200.0 3 3680.3 3500.3 5 7.5734-5 7.9556-5 2 8.587 28.72 1 0.6079 0.5328 5 1.1644 1.1777	7.3 7.3 2100,0 2000,0 3320.3 3140.3 8.3626-5 8.8007-5 28.821 28.886 0.4718 0.4246 1.1931 1.2091	7.3 7.3 1900.0 1800.0 29.0.3 2780.3 9.2773-5 9.8013-5 28.928 28.953 0.3897 0.3650 1.2244 1.2379	0.5000 0.5000 7.3 7.3 1700.0 1600.0 2600.3 2420.3 1.0383-4 1.1035-4 28.968 28.975 0.3480 0.3365 1.2490 1.2577 780.7 759.9
MOLE FRACTIONS AR CO 0.06916 CO 0.05481 H 0.01438 H02 0.00001 H2 0.01663 H20 0.08440 N0 0.01273 OH 0.02235 O2 0.02780	0.05909 0.04803 0.06730 0.08000 0.0893 0.00530 0.00001 0.00000 0.01250 0.00966 0.01250 0.00966 0.01059 0.00835 0.68893 0.69910 0.00792 0.00467 0.01768 0.01336	0.00849 0.0085 0.03730 0.0276 0.09210 0.1029 0.00301 0.0016 0.00030 0.0000 0.00724 0.0052 0.10954 0.1147 0.00633 0.0046 0.70761 0.7145 0.00259 0.0013 0.00964 0.0066 0.01615 0.0121	0 0.01943 0.01291 0 0.11192 0.1190 2 0.00083 0.00044 6 0.00001 0.00006 6 0.00371 0.0025 5 0.11865 0.1214 0 0.71987 0.7238 0 0.71987 0.7238 0 0.00065 0.00025 5 0.000437 0.0027	2 0.00821 0.00489 0 0.12422 0.12783 0 0.0018 0.00007 0 0.00000 0.00000 0 0.00166 0.00105 0 0.012342 0.12473 0 0.00137 0.00082 0 0.72670 0.72862 0 0.0012 0.00008	0.00273 0.00142 0.13018 0.13161 0.00003 0.00001 0.00000 0.00000 0.00063 0.00036 0.12557 0.12608 0.00047 0.00025 0.72986 0.73061 0.00002 0.00000 0.00047 0.00023	0.00873

ADD H20(L) ADD C(S)

P, AIM P, PSIA T, DEG F T, DEG F RHO, G/C M, MOL V CP, CAL GAMMA IS	; CC NT / (G) (k) S)	1.0000 14.7 1500.0 2240.3	14.2857 1.0000 14.7 1400.0 2060.3 2.5101-4 28.836 0.3226 1.2716 716.5	F/A= 0. 1.0000 14.7 1300.0 1880.3 2.7032-4 28.836 0.3188 1.2758 691.5	1.0000 14.7 1200.0 1700.3	PERCENT F 1.0000 14.7 1100.0 1520.3 3.1947-4 28.836 0.3101 1.2857 638.6	UEL= 6 1.0000 14.7 1000.0 1340.3 3.5141-4 28.836 0.3052 1.2917 610.3	1.0000 14.7 900.0 1160.3	HI= 1.025 1.0000 14.7 800.0 980.3 4.3927-4 28.836 0.2925 1.3082 549.3	8 1.0000 14.7 700.0 800.3 5.0205-4 28.837 0.2864 1.3181 515.9	1.0000 14.7 600.0 620.3 5.8678-4 28.890 0.3011 1.3103 475.7	1.0000 14.7 500.0 440.3 7.0592-4 28.963 0.2760 1.3362 437.9	1.0000 14.7 400.0 260.3 8.8293-4 28.980 0.2604 1.3580 394.8	1.0000 14.7 300.0 80.3 1.3057-3 32.143 0.9838 1.1527 299.1
MOLE FRA AR C(S) CH4 CO CO2 H2 H2O1L H2O NH3 N2	ACTIONS	0.00867 0.00000 0.00000 0.00727 0.12840 0.00278 0.00000 0.12630 0.00000 0.72657	0.00867 0.00000 0.00000 0.00692 0.12876 0.00313 0.00000 0.12595 0.00000 0.72657	0.00867 0.00000 0.00000 0.00647 0.12921 0.00358 0.00000 0.12550 0.00000 0.72657	0.00867 0.00000 0.00000 0.00590 0.12978 G.00415 0.00000 0.12493 0.00000 0.72657	0.00867 0.00000 0.00000 0.00517 0.13050 0.00488 0.00000 0.12420 0.00000 0.72657	0.00867 0.60000 0.00000 0.00427 0.13140 0.00578 0.00000 0.12330 0.00300 0.72657	0.00867 0.00000 0.00000 0.00321 0.13247 0.00684 0.00000 0.12224 0.00000 0.72657	0.00867 0.00000 0.00000 0.00208 0.13360 0.00797 0.00000 0.12111 0.00006 0.72657	0.00867 0.00000 0.00002 0.00105 0.13461 0.00889 0.00000 0.12014 0.00001 0.72660	0.00869 0.00000 0.00092 0.00024 0.13477 0.00611 0.00000 0.12134 0.00002 0.72792	0.00871 0.00000 0.00219 0.00001 0.13407 0.00130 0.00000 0.12395 0.00001 0.72975	0.00872 0.00000 0.00250 0.00000 0.13386 0.00010 0.00000 0.12462 0.00001 0.73020	0.00868 0.00490 0.00006 0.00000 0.13073 0.00000 0.09788 0.03110 0.00000 0.72666
P, ATM P, PSIA T, DEG F T, DEG F RHO, GC M, MOL V CP, CAL GAMMA 15 SON VEL	F CC WT /(G)(k) S)	0/F= 1.5000 22.0 2800.0 4580.3 1.792-4 27.559 0.9257 1.1427 982.5	14.2857 1.5000 22.0 2700.0 4400.3 1.8868-4 27.869 0.8371 1.1460 960.8	F/A= 0. 1.5000 22.0 2600.0 4220.3 1.9778-4 28.130 0.7511 1.1511 940.5	07000 1.5000 22.0 2500.0 4040.3 2.0726-4 28.345 0.6693 1.1585 921.7	PERCENT F 1.5000 22.0 2400.0 3860.3 2.1718-4 28.514 0.5936 1.1682 904.2	1.5000 22.0 2300.0 3680.3	1.5000 22.0 2200.0 3500.3	HI= 1.025 1.5000 22.0 2100.0 3320.3 2.5060-4 28.789 0.4122 1.2151 858.4	1.5000 22.0 2000.0 3140.3	1.5000 22.0 1900.0 2960.3 2.7738-4 28.831 0.3482 1.2492 827.3	1,5000 22.0 1800.0 2780.3 2,9283-4 28,834 0,3382 1,2567 807,6	1.5000 22.0 1700.0 2600.3 3.1007-4 28.835 0.3332 1.2610 786.2	1.5000 22.0 1600.0 2420.3 3.2945-4 28.836 0.3296 1.2644 763.8
MOLE FR/ AR CO CO2 H HO2 H2 H2O NO NO NO OH	ACTIONS	0.00829 0.05994 0.06973 0.00739 0.00001 0.01238 0.09880 0.01114 0.68883 0.00627 0.01697 0.02025	0.00838 0.04987 0.08125 0.00457 6.00001 0.00880 0.69780 0.01294 0.01661	0.00846 0.04014 0.09222 0.00272 0.00000 0.00765 0.11218 0.00668 0.70545 0.00215 0.00346 0.01289	0.00853 0.03130 0.10236 0.00156 0.00000 0.00586 0.11694 0.00484 0.71177 0.00114 0.00661 0.00938	0.00858 0.02377 0.11039 0.00086 0.00000 0.00444 0.12057 0.00333 0.71680 0.00056 0.00439 0.00631	0.00862 0.01776 0.11700 0.00046 0.00000 0.00337 0.12324 0.00213 0.72062 0.0025 0.0025 0.00381	0.00864 0.01334 0.12184 0.00023 0.00000 0.00262 0.12509 0.00124 0.72334 0.00010 0.00159 0.00197	0.00866 0.01047 0.12498 0.00012 0.00000 0.00216 0.12624 0.00062 0.72509 0.00003 0.00084 0.00079	0.00867 0.00896 0.12664 0.00006 0.00000 0.00197 0.12681 0.00026 0.72601 0.00001 0.00039 0.00023	0.00867 0.00831 0.12734 0.00003 0.00000 0.00198 0.12699 0.00009 0.72639 0.00000 0.00015	0.00867 0.00801 0.12766 0.00001 0.00000 0.00210 0.12694 0.00002 0.72652 0.00000 0.00005 0.00001	0.00867 0.00779 0.12788 0.00001 0.00000 0.00227 0.12680 0.00001 0.72655 0.00000 0.00002 0.00000	0.00867 0.00756 0.12812 0.00000 0.00000 0.00250 0.12658 0.00000 0.72656 0.72656 0.00000 0.00000

ADD C(S) ADD H20(L)

CASE= 0 P, ATM P, PSIA T, DEG F T, DEG F RHO, G/CC M, MOL WT CP, CAL/(GIIK) GAMMA [S] SON VEL, M/SEC	2.0000 29.4 1500.0 2240.3	12.5000 2.0000 29.4 1400.0 2060.3 4.8826-4 28.046 0.3313 1.2720 726.6	F/A= 0. 2.0000 29.4 1300.0 1880.3 5.2582-4 28.046 0.3289 1.2746 700.9	2,0000 29.4 1200.0 1700.3	PERCENT F 2,0000 29.4 1100.0 1520.3 6,2143-4 28,046 0,3245 1,2794 645.9	2.0000 29.4 1000.0 1340.3	4074 P 2,0000 29,4 900.0 1160.3 7,5961-4 28,049 0,3241 1,2819 584.8	HI= 1.172 2.0000 29.4 800.0 980.3 8.5737-4 28.141 0.4075 1.2449 542.4	2.0000 29.4 700.0 800.3	2.0000 29.4 600.0 620.3 1.1725-3 28.864 0.3313 1.2849 471.3	2.0000 29.4 500.0 440.3 1.4119-3 28.964 0.2847 1.3231 435.8	2.0000 29.4 400.0 260.3 1.7660-3 28.983 0.2681 1.3442 392.7	2.0000 29.4 300.0 80.3 2.7123-3 33.385 0.6284 1.1701 295.7
MOLE FRACTIONS AR CISI CH4 CO CO CO2 H2 H20(L) H20 NH3 N2	0.00836 0.00000 0.00000 0.04458 0.10480 0.02015 0.00000 0.12200 0.00000 0.70012	0.00836 0.00000 0.00000 0.04259 0.10679 0.02214 0.00000 0.12001 0.00000 0.70012	0.00836 0.00000 0.00000 0.04013 0.10925 0.02460 0.00000 0.11755 0.00000 0.70012	0.00836 0.00000 0.00000 0.03708 0.11230 6.02765 0.00000 0.11450 0.00000 0.70012	0.00836 0.00000 0.00000 0.03328 0.11609 0.03144 0.00000 0.11071 0.00000 0.70012	0.00836 0.00000 0.00000 0.02857 0.12080 0.03614 0.00000 0.10600 0.00001 0.70012	0.00836 0.00000 0.00005 0.02278 0.12656 0.04172 0.00000 0.10032 0.00002 0.70019	0.00839 0.00000 0.00168 0.01445 0.13375 0.04372 0.00000 0.09549 0.00005 0.70247	0.00851 0.00000 0.00920 0.00369 0.13924 0.02532 0.00000 0.10095 0.00006 0.71302	0.00857 0.00371 0.01265 0.00034 0.13647 0.00795 0.00000 0.11243 0.00005 0.71783	0.00852 0.01288 0.00971 0.00001 0.12968 0.00134 0.00000 0.12412 0.00003 0.71371	0.00844 0.02233 0.00516 0.00000 0.12343 0.00009 0.00000 0.13320 0.00001 0.70734	0.00836 0.03234 0.00001 0.00000 0.11703 0.00000 0.12757 0.01456 0.00000 0.70014
CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WIT (P, CAL//G)(K) SON VEL, M/SEC	0/F= 3.0000 44.1 2800.0 4580.3 3.5804-4 27.421 0.7867 1.1537 989.7	12.5000 3.0000 44.1 2700.0 4400.3 3.7425-4 27.639 0.6884 1.1619 971.5	F/A= 0, 3,0000 44.1 2600.0 4220.3 3,9094-4 27,802 0,5897 1,1749 955.8	3.0000 44.1 2500.0 4040.3	PERCENT F 3.0000 44.1 2400.0 3860.3 4.2617-4 27.976 0.4344 1.2132 930.2	3.0000 44.1 2300.0 3680.3	3.0000 44.1 2200.0 3500.3	HI= 1.172 3.0000 44.1 2100.0 3320.3 4.8813-4 28.038 0.3563 1.2508 882.6	3.0000 44.1 2000.0 3140.3	3.0000 14.1 1900.0 2960.3 5.3963-4 28.044 0.3447 1.2593 842.2	3.0000 44.1 1800.0 2780.3 5.6963-4 28.045 0.3414 1.2621 820.7	3,0000 44,1 1700.0 2600,3 6,0314-4 28,046 0,3387 1,2646 798,3	3.0000 44.1 1600.0 2420.3 6.4084-4 28.046 0.3362 1.2670 775.2
MOLE FRACTIONS AR CO CO2 H H02 H2 H20 N0 N2 O OH	0.00817 0.07343 0.07262 0.00607 0.00001 0.11331 0.00666 0.68119 0.00267 0.01185	0.00824 0.06646 0.08075 0.00397 0.00000 0.01479 0.11913 0.00461 0.68766 0.00141 0.00837 0.00462	0.00829 0.06082 0.08726 0.00256 0.00000 0.01347 0.12340 0.00292 0.69257 0.00067 0.00554 0.00251	0.00832 0.05683 0.09133 0.00163 0.00100 0.01275 0.12619 0.00168 0.69592 0.00028 0.00342 0.00115	0.00834 0.05435 0.09465 0.00102 0.00000 0.01255 0.12776 0.00087 0.69795 0.00010 0.00196 0.00044	0.00835 0.05289 0.09631 0.00063 0.001271 0.12844 0.00041 0.69306 0.00003 0.00104	0.00835 0.05194 0.09735 0.00037 0.00000 0.11310 0.12853 0.00018 0.69061 0.00061 0.00052 0.00004	0.00836 0.05118 0.09816 0.00021 0.00000 0.01364 0.12825 0.00007 0.69989 0.00000 0.00024 0.00001	0.00836 0.05044 0.09892 0.00011 0.00000 0.01431 0.12772 0.00002 0.70002 0.70002 0.00000 0.00010	0.00836 0.04962 0.09975 0.00006 0.00000 0.01510 0.12699 0.00001 0.70008 0.00000 0.00000 0.00000	0.00836 0.04868 0.10070 0.00003 0.00000 0.01605 0.12608 0.00000 0.70010 0.00000 0.00001 0.00000	0.00836 0.04756 0.10182 0.00001 0.00000 0.01717 0.12497 0.00000 0.70011 0.00000 0.00000 0.00000	0.00836 0.04621 0.10317 0.00000 0.00000 0.01852 0.12363 0.00000 0.70011 0.00000 0.00000

ADD C(S) ADD H20(L)

P, ATM 4.00 P, PSIA 51 T, DEG K 150 T, DEG F 224	318 58.8 58.8 0.0 1400.0 1300.0 0.3 2060.3 1880.3 5-4 9.5095-4 1.0241-3 311 27.311 27.311 403 0.3385 0.3369 719 1.2738 1.2755	4.0000 4.0000 58.8 58.8 1200.0 1100.0 1700.3 1520.3	4.0000 4.0000 58.8 58.4 1.000.0 900.1 1.3316-3 1.4849- 2.7317 27.41 1.03408 0.447 1.2746 1.232	58.8 58.8 800.0 700.0 3 980.3 800.3 3 1.7075-3 1.9940-3 5 28.023 28.634 4 0.6487 0.4200 7 1.1857 1.2399	4.0000 4.0000 58.8 58.6 600.0 500.0 620.3 440.1 2.3472-3 2.8244- 28.891 28.97 0.3241 0.2866 1.2879 1.3199 471.6 435.2	58.8 58.8 58.8 400.0 300.0 260.3 80.3 3.5323-3 5.5834-3 28.985 34.362 0.2715 0.4685 1.3382 1.1844
MOLE FRACTIONS AR 0.00 C1S1 0.00 CH4 0.00 C0 0.97 C02 0.08 H2 0.03 H201L1 0.00 H20 0.11 NH3 0.00 N2 0.67	000 0.00000 0.00000 0.00000 0.00000 0.07308 0.06941 001 0.08903 0.09270 9446 0.04013 0.04615 000 0.00000 0.00000 4844 0.11182 0.10815 000 0.00000 0.00000	0.00866 0.00806 0.00000 0.00000 0.000492 0.0593 0.09720 0.10275 0.05064 0.05616 0.00000 0.00000 0.10265 0.09811 0.00001 0.00001 0.67552 0.67553	0.00000 0.00000 0.00009 0.0018 0.05237 0.0413 0.10969 0.1195 0.06282 0.0670 0.00000 0.0000 0.09129 0.0839 0.00003 0.0000	0 0.00002 0.01521 3 0.01296 0.01619 2 0.01830 0.00282 3 0.13505 0.13315 7 0.04823 0.02117 0.00000 0.00000 6 0.08400 0.10562 7 0.00011 0.00010	0.00832 0.00826 0.02464 0.03444 0.01585 0.01200 0.00023 0.00000 0.12655 0.11944 0.00623 0.00100 0.12117 0.1327 0.00007 0.00000 0.12117 0.1327 0.00007 0.00000 0.69695 0.69184	0 0.04539 0.05778 0.00655 0.00000 0.00000 0.00000 7 0.11230 0.10433 0 0.00007 0.00000 0 0.00000 0.14741 0 0.00689 0 0.00001 0.00000
P, ATM 6.0	88.2 0.0 2700.0 2600.0 0.3 4400.3 4220.3 2-4 7.3492-4 7.6518-4 728 27.137 27.208 992 0.5187 0.4578 902 1.1954 1.2119	6.0000 6.0000 88.2 88.2 2500.0 2400.0 4040.3 3860.3	6.0000 6.0000 88.2 88 2300.0 2200.0 8 3680.3 3500. 8 36768-4 9.0741- 27.293 27.30 6 0.3734 0.363 8 1.2475 1.253	2 88.2 88.2 2100.0 2000.0 3 3320.3 3140.3 4 9.5078-4 9.9841-4 2 27.306 27.309 1 0.3566 0.3523 5 1.2579 1.2611	6.0000 6.0000 38.2 88.2 1900.0 1800.0 2960.3 2780.1 1.0510-3 1.1094-1 27.310 27.31 0.3491 0.3466 1.2637 1.2656 855.0 832.5	88.2 88.2 1700.0 1600.0 3 2600.3 2420.3 3 1.1747-3 1.2481-3 27.311 27.311 0.3444 0.3423 0 1.2680 1.2700
MOLE FRACTIONS AR 0.00 C0 0.09 C02 0.06 H 0.00 H2 0.02 H20 0.12 N0 0.00 N2 0.66 0 0.00 OH 0.00 OH 0.00	528 0.09351 0.09159 415 0.06757 0.069159 4339 0.00370 0.00250 530 0.02576 0.02571 017 0.12339 0.12532 314 0.00191 0.00108 595 0.67027 0.67244 0700 0.00042 0.00018 708 0.00465 0.00288	0.09024 0.0892 0.07152 0.0727 0.00165 0.00105 0.02602 0.02656 0.12628 0.12658 0.00057 0.00028 0.67377 0.67456 0.00007 0.00002 0.00169 0.00094	0.08830 0.0873 0.07370 0.0746 0.00065 0.0003 0.02728 0.0281 0.12635 0.1258 0.00013 0.0000 0.67501 0.6752 0.00001 0.0000 0.000050 0.0002	0 0.08640 0.08528 0 0.07568 0.07681 3 0.00022 0.00011 3 0.02912 0.03025 0 0.12499 0.12396 6 0.00002 0.00001 5 0.67539 0.67546 0 0.00000 0.00000 4 0.00011 0.00005	0.00806 0.00806 0.08399 0.08248 0.07811 0.0796; 0.00006 0.00003 0.12270 0.1212 0.00000 0.00006 0.67549 0.6755 0.00000 0.00006 0.00000 0.00006 0.00000 0.00006	0.09071 0.07861 0.008140 0.08350 0.00001 0.00000 0.03485 0.03695 0.11944 0.11735 0.00000 0.00000 0.67552 0.67552 0.00000 0.00000 0.00000 0.00000

ADD CISI

P, ATM 10.000 P, PSIA 147.0 T, DEG K 1500.0 T, DEG F 2240.3	10,0000 F/A= 0,10000 10,000 10,000 12,000 147.0 147.0 147.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 23178-3 2,4961-3 2,7042-3 26,627 26,627 26,628 0,3444 0,3433 0,3434 1,2767 1,2779 1,2788 747.1 720.2 692.1	147.0 147.0 1 1100.0 1000.0 9 1520.3 1340.3 11 2.9510-3 3.2584-3 3.70 26.636 26.737 27 0.3515 0.4563 0. 1.2745 1.2359 1.	PHI= 1.4654 .000	10,000 10,000 10,000 10,000 147,0 147,0 147,0 147,0 147,0 147,0 600,0 500,0 400,0 300,0 400,3 400,3 260,3 80,3 5,743-3 7.0628-3 2.8316-3 1.4316-2 28,922 28,978 28,988 35,243 0,3154 0,2869 0,2749 0,3812 1,2919 1,3171 1,3324 1,1949 472,1 434,7 391,0 290,8
MOLE FRACTIONS AR 0.00779 C151 0.00000 CH4 0.00000 C0 0.10313 C02 0.07085 H2 0.05981 H201L1 0.00000 H20 0.10581 NH3 0.00001 N2 0.65260	0.10226 0.09758 0.09276 0.00001 0.00002 0.00003	0.00000 0.60000 0.0 0.00016 0.00203 0.0 0.08340 0.07254 0.0 0.09049 0.10014 0.1 0.07890 0.00281 0.0 0.00000 0.00000 0.0 0.08639 0.07928 0.0 0.00006 0.00011 0.0	0801 0.00808 0.00812 0000 0.02335 0.03472 1387 0.01870 0.02084 4535 0.01111 0.00170 1962 0.12737 0.12399 6643 0.03621 0.01504 0000 0.00000 0.00000 7583 0.09797 0.11561 0017 0.00018 0.00015 7072 0.67703 0.67992	0.00809 0.00802 0.00792 0.00779 0.04369 0.05420 0.06651 0.08148 0.01932 0.01463 0.00813 0.00000 0.00014 0.00000 0.00000 0.00000 0.11758 0.11025 0.10218 0.09251 0.00431 0.00072 0.00005 0.00000 0.00000 0.00000 0.00000 0.16301 0.12894 0.14042 0.15199 0.00262 0.00010 0.00000 0.00000 0.67384 0.00010 0.00005 0.00002 0.00000 0.67784 0.67170 0.66321 0.65260
CASE= 0 0/F= P, ATM 15.000 P, PSIA 220.4 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.7296-3 M, MOL WT 26.493 CP, CAL//(G)1K1 0.4729 GAMMA (S) 1.2139 SON VEL,M/SEC 1032.8		220.4 220.4 2 2400.0 2300.0 22 3860.3 3680.3 35 2.0266-3 2.1154-3 2.21 26.607 26.616 26 0.3777 0.3691 0. 1.2517 1.2567 1.	.000 15.000 15.000 20.4 220.4 220.4 00.0 2100.0 2000.0 00.3 3320.3 3140.3	15,000 15,000 15,000 15,000 220.4 220.4 220.4 1900.0 1800.0 1700.0 1600.0 25601.3 27601.3 266.626 26.626 26.626 26.626 0.3513 0.3414 0.3476 1.2679 1.2699 1.2717 1.2735 867.3 844.8 821.6 797.6
MOLE FRACTIONS AR CO 0.12210 CO2 0.05101 H 0.00429 H2 0.04163 H20 0.11925 NH3 0.00000 N0 0.00123 N2 0.64871 O 0.00323 OH 0.00323 O2 0.00026	0.05235 0.05344 0.05410 0.00299 0.00203 0.00134 0.04203 0.04262 0.04336 0.12045 0.12097 0.12099 0.00000 0.00000 0.00000 0.00071 0.00039 0.00020 0.65016 0.65111 0.65171 0.00010 0.00004 0.00002	0.11853 0.11761 0.1 0.05533 0.05630 0.0 0.00086 0.00053 0.0 0.04422 0.04518 0.1 0.12064 0.12000 0.1 0.00000 0.00000 0.0 0.00010 0.00005 0.0 0.65208 0.65231 0.6 0.00011 0.00000 0.0 0.00004 0.00000 0.0	0.00779 0.00779 1658 0.11541 0.11407 15736 0.05855 0.05991 00031 0.00017 0.00009 4626 0.04747 0.04894 1912 0.11802 0.11671 0000 0.00001 0.00000 05244 0.65252 0.65256 0000 0.00000 0.00000 00010 0.00000 0.00000 00010 0.00000 0.00000 00010 0.00000 0.00000	0.00779 0.00779 0.00779 0.00779 0.11251 0.11070 0.10858 0.10609 0.06147 0.06328 0.06540 0.06789 0.00005 0.00002 0.00001 0.00000 0.05042 0.05224 0.05436 0.05685 0.11517 0.11337 0.11126 0.10876 0.00000 0.00000 0.00001 0.00001 0.00000 0.00000 0.00000 0.00000 0.65258 0.65259 0.65260 0.65260 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

CASE= (P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0 0/F= 1.5000 22.0 2800.0 4580.3 1.8732-4 28.692 0.4919 1.1986 986.2	0.0000 1.5000 22.0 2700.0 4400.3 1.9486-4 28.781 0.4493 1.2092 971.2	F/A= 0. 1.5000 22.0 2600.0 4220.3 2.0280-4 28.845 0.4146 1.2203 956.3	1.5000 22.0 2500.0 4040.3	PERCENT F 1.5000 22.0 2400.0 3860.3 2.2027-4 28.919 0.3654 1.2420 925.7	1.5000 22.0 2300.0 3680.3	0000 F 1.5000 22.0 2200.0 3500.3 2.4055-4 28.950 0.3363 1.2605 892.4	PHI= 0.000 1.5000 22.0 2100.0 3320.3 2.5207-4 28.957 0.3267 1.2682 874.5	1.5000 22.0 2000.0 3140.3	1.5000 22.0 1900.0 2960.3 2.7865-4 28.963 0.3129 1.2814 836.0	1.5000 22.0 1800.0 2780.3 2.9414-4 28.964 0.3076 1.2874 815.6	1.5000 22.0 1700.0 2600.3 3.1145-4 28.964 0.3028 1.2931 794.4	1.5000 22.0 1600.0 2420.3 3.3092-4 28.964 0.2983 1.2987 772.3
MOLE FRACTIONS AR CO CO2 NO NO2 N2 O O	0.00924 0.00007 0.00023 0.03487 0.00002 0.75611 0.01874 0.18072	0.00926 0.00005 0.00025 0.03078 0.00002 0.76054 0.01266 0.18644	0.00928 0.00003 0.00027 0.02676 0.00002 0.76427 0.09826 0.19110	0.00930 0.00028 0.00028 0.02292 0.00002 0.76740 0.00519 0.19488	0.00931 0.00001 0.00029 0.01930 0.00002 0.77001 0.00313 0.19793	0.00931 0.00061 0.00029 0.01598 0.00002 0.77219 0.00180 0.20039	0.00932 0.00090 0.00030 0.01297 0.00002 0.77402 0.00099 0.20239	0.00932 0.00000 0.00030 0.01030 0.00002 0.77554 0.00051 0.20401	0.00932 0.00600 0.00030 0.00798 0.00002 0.77680 0.00025 0.20533	0.00932 0.00000 0.00030 0.00601 0.00001 0.77784 0.00011 0.20640	0.00932 0.00000 0.00030 0.00438 0.00001 0.77868 0.00004 0.20726	0.00932 0.00000 0.00030 0.00308 0.00001 0.77934 0.00002 0.20793	0.00932 0.00000 0.00030 0.00207 0.00001 0.77985 0.00001 0.20844
CASE= CATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0 0/F= 1.5000 22.0 1500.0 2240.3 3.5298-4 28.964 0.2940 1.3044 749.4	0.0000 1.5000 22.0 1400.0 2060.3 3.7819-4 28.964 0.2898 1.3102 725.6	F/A= 0. 1.5000 22.0 1300.0 1880.3 4.0728-4 28.964 0.2856 1.3161 700.8	1,5000 22,0 1200.0 1700,3	PERCENT F 1.5000 22.0 1100.0 1520.3 4.8134-4 28.964 0.2773 1.3287 647.7	1.5000 22.0 1000.0 1340.3	1.5000 22.0 900.0 1160.3	PHI= 0.000 1.5000 22.0 800.0 980.3 6.6184-4 28.964 0.2626 1.3536 557.5	1.5000 22.0 700.0 800.3	1.5000 22.0 600.0 620.3 8.8245-4 28.964 0.2512 1.3757 486.8	1.5000 22.0 500.0 440.3 1.0589-3 28.964 0.2461 1.3865 446.1	1.5000 22.0 400.0 260.3 1.3237-3 28.964 0.2422 1.3952 400.3	1.5000 22.0 300.0 80.3 1.7649-3 28.964 0.2402 1.3999 347.2
MOLE FRACTIONS AR CO2 NO NO2 NO2 O2	0.00932 0.00030 0.00131 0.00001 0.78023 0.20882	0.00932 0.00030 0.00078 0.00001 0.78050 0.20909	0.00932 0.00030 0.00043 0.00001 0.78067 0.20927	0.00932 0.00030 0.00021 0.00000 0.78078 0.20938	0.00932 0.00030 0.00009 0.00000 0.78084 0.20944	0.00932 0.00030 0.00004 0.00000 0.78087 0.20947	0.00932 0.00030 0.00001 0.00000 0.78089 0.20948	0.00932 0.00030 0.00000 0.00000 0,78089 0.20948	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949

P, ATM 2.0000 P, PSIA 29.4 T, DEG k 1500.0 T, DEG F 2240.3	00,0000 F/A= 0.01000 2,0000 2,0000 2,0000 29.4 29.4 29.4 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 5,0430-4 5,4309-4 5,8855-4 28,967 28,967 28,967 0,2950 0,2906 0,2863 1,3031 1,3090 1,3151 723.6 698.9 673.0	PERCENT FUEL= 0.9901 2.0000 2.0000 2.0000 29.4 29.4 29.1 1100.0 1000.0 900.1 1520.3 1340.3 1160.1 6.4184-4 7.0602-4 7.8447- 28.967 28.967 28.96 0.2820 0.2774 0.272 1.3215 1.3285 1.336 645.9 617.5 587.	4 29.4 29.4 29.4 29.0 800.0 700.0 600 3 980.3 800.3 620 48.8253-4 1.0086-3 1.1767 7 28.967 28.967 28.96 0.2606 0.250 3 1.3466 1.3574 1.366	.4 29.4 29.4 29.4 500.0 400.0 300.0 .3 440.3 260.3 80.3 .3 1.4120-3 1.7651-3 2.3589-3 .7 28.967 28.967 29.035 16 0.2492 0.2448 0.6175 .8 1.3799 1.3893 1.2088
MOLE FRACTIONS AR 0.00923 C02 0.02088 H20(L) 0.00000 H20 0.01961 N0 0.00120 N02 0.00001 N2 0.77262 OH 0.00003 02 0.17642	0.00923 0.00923 0.00923 0.02088 0.02088 0.02068 0.00000 0.00000 0.00000 0.01962 0.01962 0.01962 0.00072 0.00039 0.00020 0.07287 0.77303 C.77313 0.00001 0.0000 0.00000 0.17667 0.17663 0.17693	0.00923 0.00923 0.0092 0.02088 0.02088 0.0208 0.00000 0.00000 0.0000 0.01962 0.01962 0.0196 0.00000 0.00000 0.0000 0.77319 0.77321 0.7732 0.00000 0.00000 0.0000 0.17699 0.17702 0.1770	8 0.02088 0.02088 0.020 0 0.00000 0.00000 0.000 1 0.00000 0.00000 0.000 0 0.00000 0.00000 0.000 0 0.00000 0.00000 0.000 0 0.00000 0.00000 0.000 0 0.00000 0.00000 0.000	88 0.02088 0.02088 0.02088 0.00000 0.00000 0.00233 52 0.01962 0.01962 0.01729 60 0.00000 0.00000 0.00000 60 0.00000 0.00000 0.00000 777323 0.77323 0.77323 60 0.00000 0.00000 0.00000
P, ATM 3.0000 P, PSIA 44.1 T, DEG K 2800.0 T, DEG F 4580.3	3,0000 3,0000 3,0000 44,1 44,1 44,1 2700,0 2600,0 2500,0 4400,3 4220,3 4040,3	PERCENT FUEL= 0,9901 3,0000 3,0000 3,44,1 44,1 2400.0 2300.0 2200.3860.3 3500.4 4.0029-4 4.5982-4 4,8098-28,903 28,927 28,94 0,3813 0,3625 0,347 1,2322 1,2422 1,251 922,3 906.2 889.	1 44.1 44.1 44.1 49.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 1	.1 44.1 44.1 44.1 .0 1800.0 1700.0 1600.0 .3 2780.3 2600.3 2420.3 -4 5.8831-4 6.2294-4 6.6189-4 .3 28.965 28.966 28.967 .0 3142 0.3088 0.3039 .1 2799 1.2859 1.2916
MOLE FRACTIONS AR C0 0.00374 C02 0.01691 H02 0.00002 H2 0.00045 H20 0.01399 N0 0.03193 N02 0.0003 N2 0.74863 O 0.01219 OH 0.00891 OC 0.00891 OC 0.00891 OC 0.00891 OC 0.01890	0.00916 0.00918 0.00920 0.00256 0.00167 0.00103 0.01816 0.01911 0.01978 0.00059 0.00033 0.00017 0.00002 0.00001 0.00001 0.00023 0.01628 0.01714 0.02813 0.01628 0.01714 0.02813 0.02443 0.02091 0.00003 0.00003 0.00003 0.75313 0.75692 0.76008 0.00822 0.00536 0.00337 0.00723 0.00570 0.00435 0.15723 0.16077 0.16379	0.00921 0.00922 0.0092 0.00060 0.00033 0.0001 0.02024 0.02052 0.0206 0.00009 0.00001 0.0000 0.00001 0.00001 0.0000 0.01783 0.0183 0.0187 0.01761 0.01458 0.0118 0.00002 0.00002 0.0000 0.76270 0.76487 0.7666 0.00023 0.00117 0.0006 0.00323 0.00137 0.0006 0.00323 0.0015 0.16635 0.16852 0.1703	7 0.0008 0.00004 0.0009 9 0.02079 0.02084 0.020 2 0.00001 0.00000 0.0000 1 0.00000 0.00000 0.000 7 0.01907 0.01928 0.019 4 0.00941 0.00729 0.005 2 0.00002 0.00002 0.000 7 0.76815 0.76937 0.770 4 0.00933 0.00016 0.000 9 0.00105 0.00066 0.000	02 0.00001 0.00000 0.00000 806 0.02087 0.02088 0.02088 90 0.00000 0.00000 0.00000 90 0.00000 0.00000 0.00000 90 0.00000 0.00000 0.00000 12 0.01951 0.01956 0.01959 90 0.00001 0.00001 0.00001 90 0.00001 0.00001 0.00001 90 77 0.00003 0.00001 0.00000 90 0.00001 0.00001 0.00001 90 0.00001 0.00001 0.00001 90 0.00001 0.00001 0.000001 90 0.00003 0.00001 0.00000000000000000000

ADD H201L1

P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K)	0/F= 4.0000 58.8 1500.0 2240.3 4144-4 28.969 0.3044 1.2910 745.5	50.0000 4.0000 58.8 1400.0 2060.3 1.0087-3 28.969 0.2999 1.2966 721.8	F/A= 0. 4.0000 58.8 1300.0 1803.3 1.0863-3 28.970 0.2955 1.3023 697.1	4.0000 58.8 1200.0 1700.3	PERCENT F 4.0000 58.8 1100.0 1520.3 1.2838-3 28.970 0.2865 1.3147 644.3	UEL= 1 4.0000 58.8 1000.0 1340.3 1.4122-3 28.970 0.2818 1.3218 615.9	9608 P 4.0000 58.8 900.0 1160.3 1.5691-3 28.970 0.2764 1.3302 586.2	HI= 0.293 4.0000 58.8 800.0 980.3 1.7652-3 28.969 0.2704 1.3399 554.7	1 4.0000 58.8 700.0 800.3 2.0174-3 28.969 0.2642 1.3508 520.9	4.0000 58.8 600.0 620.3 2.3536-3 28.970 0.2579 1.3623 484.3	4.0000 58.8 500.0 440.3 2.8243-3 28.970 0.2522 1.3737 444.0	4.0000 58.8 400.0 260.3 3.5304-3 28.970 0.2474 1.3837 398.6	4.0000 58.8 300.0 80.3 4.8551-3 29.880 0.4350 1.2420 322.0
CO2 H201L1 0 H20 N0 0 N02 0 N2 0 OH 0	0,00914 0,04106 0,00000 0,03885 0,00108 0,00001 0,76517 0,00003 0,14465	0.00914 0.04106 0.00000 0.03886 0.00065 0.00001 0.76539 0.00001 0.14488	0.00914 0.04106 0.00000 0.03887 0.00036 0.00001 0.76554 0.00000 0.14563	0.00914 0.04106 0.00000 0.03887 0.00018 0.00000 G.76563 0.00000 0.14512	0.00914 0.04106 0.00000 0.03837 0.00008 0.00000 0.76568 0.00000 0.14517	0.00914 0.04106 0.00000 0.03887 0.00003 0.00000 0.76570 0.00000 0.14520	0.00914 0.04106 0.00000 0.03887 0.00001 0.00000 0.76571 0.00000 0.14521	0.00914 0.04106 0.00000 0.03887 0.00000 0.00000 0.76571 0.00000 0.14521	0.00914 0.04106 0.00000 0.03867 0.00000 0.00000 0.76571 0.00000 0.14521	0.00914 0.04106 0.00000 0.03887 0.00000 0.00000 0.76572 0.00000 0.14521	0.00914 0.04106 0.00000 0.03887 0.00000 0.00000 0.76572 0.00000 0.14521	0.00914 0.04106 0.00000 0.03887 0.00000 0.00000 0.76572 0.00000 0.14521	0.00914 0.04106 0.03047 0.00840 0.00000 0.00000 0.76572 0.00000 0.14521
M, MOL HT	6.0000 88.2 2800.0 4580.3	50.000 6.0000 88.2 2700.0 4400.3 7.7868-4 28.753 0.4725 1.1991 967.6	F/A= 0. 6.0000 88.2 2600.0 4220.3 8.1058-4 28.823 0.4367 1.2091 952.3	6.0000 88.2 2500.0 4040.3	PERCENT F 6.0000 88.2 2400.0 3860.3 8.8071-4 28.907 0.3841 1.2295 921.3	6.0000 88.2 2300.0 3680.3	6.0000 88.2 2200.0 3500.3	HI= 0.293 6.0000 88.2 2100.0 3320.3 1.0082-3 28.956 0.3409 1.2553 870.0	6.0000 88.2 2000.0 3140.3 1.0588-3 28.962 0.3322 1.2622 851.3	6.0000 88.2 1900.0 29.0.3 1.1147-3 28.965 0.3252 1.2685 831.8	6.0000 88.2 1800.0 2780.3 1.1767-3 28.967 0.3191 1.2744 811.4	6.0000 88.2 1700.0 2600.3 1.2460-3 28.969 0.3138 1.2800 790.3	6.0000 88.2 1600.0 2420.3 1.3239-3 28.969 0.3090 1.2855 768.3
CO C	0.00904 0.00597 0.03466 0.00094 0.00080 0.00080 0.03179 0.02889 0.00003 0.74309 0.00783 0.01076 0.12618	0.00907 0.00404 0.03672 0.00054 0.00002 0.00056 0.03345 0.02538 0.00003 0.74730 0.00526 0.00858 0.12905	0.00910 0.00261 0.03825 0.00030 0.00002 0.00037 0.03481 0.02201 0.00003 0.75081 0.00343 0.00343 0.00666 0.13161	0.00911 0.00160 0.03933 0.00016 0.00032 0.00590 0.01883 0.00003 0.75372 0.00215 0.00503 0.13389	0.00912 0.00093 0.04005 0.00008 0.00015 0.03675 0.01585 0.00003 0.75613 0.00130 0.00369 0.13592	0.00913 0.00051 0.04050 0.00004 0.00001 0.00009 0.03740 0.01312 0.00003 0.75812 0.00075 0.00262 0.13770	0.00913 0.00027 0.04077 0.00002 0.00001 0.00005 0.03788 0.01066 0.00003 0.75976 0.00041 0.00180 0.13924	0.00914 0.00013 0.04092 0.00001 0.00001 0.00002 0.03822 0.00847 0.00002 0.76111 0.00021 0.00119	0.00914 0.00006 0.04099 0.00000 0.00000 0.00001 0.03847 0.00657 0.00002 0.76222 0.00010 0.00075 0.14166	0.00914 0.00002 0.04103 0.00000 0.00000 0.00001 0.03863 0.00495 0.00002 0.76312 0.00005 0.00045 0.14258	0.00914 0.00001 0.04105 0.00000 0.00000 0.00000 0.03873 0.00361 0.00002 0.76385 0.00002 0.00025 0.14331	0.00914 0.00000 0.04106 0.00000 0.00000 0.00000 0.00254 0.00002 0.76442 0.00001 0.00013 0.14389	0.00914 0.00000 0.04106 0.00000 0.00000 0.00000 0.03883 0.00170 0.00001 0.76485 0.00000 0.00007 0.14433

CASE= 0 P, ATM P, PSIA I, DEG K I, DEG F RHO, G/CC M, MOL WI CP, CAL/(GIIK) GAMMA (SI SON VEL,M/SEC	147.0 1500.0 1 2240.3 2 2.3538-3 2.5 28.972 2 0.3092 0 1,2851 1	3333 F/A= 0.0 0.000 10.000 147.0 147.0 1400.0 1300.0 0.000.3 1880.3 0.000 1880.3	10.000 147.0 1200.0 1700.3	ERCENT FU 10.000 147.0 1100.0 1520.3 .2098-3 28.972 0.2910 1.3084 642.7	10.000 147.0 1000.0 1340.3	10.000 147.0 900.0 1160.3	HI = 0.4396 10.000 147.0 800.0 980.3 4.4134-3 28.972 0.2742 1.3336 553.3	10.000 147.0 700.0 800.3	10.000 147.0 600.0 620.3 5.8845-3 28.972 0.2612 1.3561 483.2	10.000 147.0 500.0 440.3 7.0614-3 28.972 0.2551 1.3678 443.0	10.000 147.0 400.0 260.3 8.8268-3 28.972 0.2499 1.3784 397.8	10.000 147.0 300.0 80.3 1.2447-2 30.641 0.3349 1.2733 322.0
MOLE FRACTIONS AR CO2 H20(L) H20 NO NO2 N2 OH	0.06086 0. 0.00000 0. 0.05772 0. 0.00095 0. 0.00001 0. 0.75786 0. 0.00003 0.	.05773 0.05774 .00057 0.00031 .00001 0.00001 .75806 0.75819 .00001 0.00000	0.06066 0.00000 0.05774 0.00016 0.00001 0.75827 0.00000	0.00905 0.06086 0.00000 0.05774 0.00007 0.00000 0.75831 0.00000 0.11396	0.00905 0.06086 0.60000 0.05774 0.00003 0.00000 0.75833 0.00000 0.11399	0.00905 0.06086 0.00000 0.05774 0.00001 0.00000 0.75834 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.05446 0.00328 0.00000 0.00000 0.75835 0.00000 0.11400
CASE = 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/IGI(K) GAMMA (S) SON VEL,M/SEC	220.4 2800.0 2 4580.3 4 1.8745-3 1.9 28,713 2 0.4934 0 1.1934 1	3333 F/A= 0.0 5.000 15.000 220.4 220.4 2700.0 2600.0 1400.3 4220.3 1493-3 2.0283-3 18.791 28.849 0.4259 1.2022 1.2116 968.2 952.8	15.000 220.4 2500.0 4040.3	ERCENT Ft 15.000 220.4 2400.0 3860.3 .2027-3 28.920 0.3806 1.2301 921.3	15.000 220.4 2300.0 3680.3	15.000 220.4 2200.0 3500.3	HI= 0.4396 15.000 220.4 2100.0 3320.3 2.5209-3 28.960 0.3432 1.2526 869.0	15.000 220.4 2000.0 3140.3	15.000 220.4 1900.0 29.0.3 2.7871-3 28.969 0.3290 1.2644 830.4	15.000 220.4 1800.0 2780.3 2.9421-3 28.970 0.3234 1.2697 809.9	15.000 220.4 1700.0 2600.3 3.1153-3 28.971 0.3184 1.2749 788.7	15.000 220.4 1600.0 2420.3 3.3100-3 28.972 0.3137 1.2800 766.6
MOLE FRACTIONS AR CO CO2 H H02 H20 NO NO2 H2 O H2	0.006E9 0. 0.05372 0. 0.00063 0. 0.00004 0. 0.00091 0. 0.05585 0. 0.02555 0. 0.00004 0. 0.73877 0. 0.00439 0. 0.01019 0.	00900 0.00902 00441 0.00281 05607 0.05778 00036 0.00020 00003 0.00003 00062 0.0041 05254 0.05387 02240 0.01940 00004 0.00004 74239 0.74541 00295 0.0192 00804 0.00620 10115 0.10292	0.00171 0.05897 0.00010 0.00032 0.00026 0.05493 0.01657 0.00004 0.74791 0.00120 0.00465	0.00904 0.00099 0.05976 0.00005 0.00002 0.00016 0.05574 0.01395 0.00003 0.74998 0.00073 0.00340 0.10615	0.00904 0.00054 0.06024 0.0002 0.00001 0.00009 0.05636 0.01155 0.00003 0.75170 0.00042 0.00241 0.10757	0.00905 0.00028 0.06053 0.00001 0.00001 0.00005 0.05682 0.00938 0.00003 0.75312 0.00023 0.00165 0.10884	0.00905 0.00014 0.06070 0.00000 0.00001 0.0003 0.05714 0.00746 0.0003 0.75430 0.09012 0.00109 0.10995	0.00905 0.00006 0.06078 0.00000 0.00000 0.00001 0.05737 0.00578 0.00003 0.75527 0.00006 0.00068 0.11089	0.00905 0.00003 0.06082 0.00000 0.00000 0.00001 0.05752 0.00436 0.00002 0.75607 0.00003 0.00041 0.11168	0.00905 0.00001 0.06084 0.00000 0.00000 0.05762 0.00318 0.00002 0.75670 0.00001 0.00003 0.11232	0.00905 0.00000 0.06085 0.00000 0.00000 0.00000 0.05768 0.00224 0.00002 0.75720 0.75720 0.00000 0.00012	0.00905 0.00000 0.06086 0.00000 0.00000 0.00000 0.05771 0.00002 0.75758 0.00000 0.00000 0.11322

CASE= 0 0/F= 25.0000 P, ATM 20.000 20.000 P, PSIA 293.9 293.5 T, DEG K 1500.0 1400.6 T, DEG F 2240.3 2060.1 RHO, G/CC 4.7080-3 5.0443-7 M, MOL WT 28.974 28.975 CP, CAL/IG/IK) 0.3138 0.3094 GAMMA (S) 1.2797 1.2844 SON VEL, M/SEC 742.2 718.4	293.9 293.9 293.9 293.9 0 1300.0 1200.0 1100.0 0 1800.3 1700.3 1520.3 0 5.4324-3 5.8851-3 6.4201-3 0 28.975 28.975 28.975 0 .3049 0.3002 0.2954 0 1.2961 1.3024	20,000 20,000 20,000 20,000 293.9 293.9 293.9 293.9 1000.0 900.0 800.0 700.0 1340.3 1160.3 980.3 800.3	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 1.1770-2 1.4124-2 1.7655-2 2.5439-2 28.974 28.974 28.974 31.312 0.2644 0.2580 0.2523 0.3079 1.3503 1.3622 1.3733 1.2774 482.2 442.1 397.0 319.0
MOLE FRACTIONS AR C02 0.08027 0.08027 H20(L) 0.00000 0.00000 H20 0.07624 0.07624 N0 0.00081 0.00001 N2 0.75071 0.75081 OH 0.00002 0.08315	7 0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 5 0.07625 0.07625 0.07625 8 0.00027 0.00013 0.00006 1 0.00001 0.00001 0.00000 7 0.75099 0.75105 0.75109 0.00000 0.00000 0.00000	0.00897 0.00897 0.00897 0.00897 0.00697 0.8027 0.08027 0.08027 0.08027 0.08027 0.60000 0.00000 0.00000 0.00000 0.00000 0.07625 0.07625 0.07625 0.07600 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.75112 0.75112 0.75112 0.75112 0.75102 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.08337 0.08338 0.08339 0.08339 0.08339	0.00897 0.00897 0.00897 0.00897 0.08027 0.08027 0.08027 0.08027 0.00000 0.00000 0.07625 0.07625 0.07625 0.07625 0.07625 0.00160 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.75112 0.75112 0.75112 0.75112 0.75112 0.00000 0.00000 0.00000 0.00000 0.08339 0.08339 0.08339 0.08339
CASE= 0 0/F= 25.0000 P, ATM 30.000 30.000 P, PSIA 440.9 440.5 T, DEG K 2800.0 2700.6 T, DEG G/C 3.7524-3 3.9011- M, MOL WT 28.738 28.816 CP, CAL/(G)(K) 0.4858 0.451/ GAMMA (5) 1.1943 1.203 SON VEL,M/SEC 983.6 968.3	440.9 440.9 440.9 2600.0 2500.0 2400.0 3 4220.3 4040.3 3860.3 3 4.0586-3 4.2265-3 4.4066-3 0 28.863 28.901 28.928 0 0.4224 0.3988 0.3803 0 1.2120 1.2209 1.2293	30.000 30.000 30.000 30.000 440.9 440.9 440.9 440.9 2300.0 2200.0 2100.0 2000.0 3680.3 3500.3 3320.3 3140.3	30.000 30.000 30.000 30.000 440.9 440.9 440.9 440.9 1900.0 1800.0 1700.0 1600.0 290.3 2780.3 2600.3 2420.3 5.5747-3 5.8847-3 6.2311-3 6.6206-3 28.971 28.973 28.974 28.974 0.3328 0.3275 0.3227 0.3182 1.2605 1.2653 1.2701 1.2748 829.0 808.5 787.1 765.1
MOLE FRACTIONS AR C0 0.00889 0.0089 C02 0.07227 0.0048 H0 0.00040 0.00002 H2 0.00103 0.0007 H2 0.00175 0.0190 N0 0.02175 0.0190 N0 0.00265 0.0017 0 0.00265 0.0017 0H 0.00927 0.00734	0 0.00311 0.00189 0.00109 0 0.07686 0.07818 0.07905 0 0.00015 0.00008 0.00004 0 0.00004 0.00002 0.00002 0 0.00046 0.00029 0.00018 0 0.07262 0.07363 0.07440 0 0.0004 0.00004 0.00183 0 0.73998 0.74217 0.74397 0 0.00115 0.00072 0.00044 0 0.000558 0.00418 0.00305	0.00896 0.00896 0.00896 0.00897 0.00060 0.00031 0.00015 0.00007 0.07960 0.07992 0.08010 0.08019 0.00001 0.00001 0.00001 0.00001 0.00010 0.00001 0.00001 0.00001 0.07498 0.07594 0.07571 0.07591 0.00980 0.00796 0.00633 0.00043 0.07494 0.07596 0.00633 0.0003 0.74545 0.74667 0.74767 0.74850 0.00025 0.00014 0.00007 0.00061 0.0026 0.00144 0.00097 0.00061 0.0026 0.007907 0.00076 0.00676	0.00897 0.00897 0.00897 0.00897 0.00003 0.00001 0.00000 0.00000 0.8024 0.08026 0.08027 0.08027 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.07605 0.07614 0.07619 0.07622 0.00371 0.00271 0.00190 0.00020 0.74918 0.74972 0.75014 0.75047 0.00002 0.00001 0.00000 0.00000 0.00037 0.00021 0.00001 0.00000 0.74918 0.74972 0.75014 0.75047 0.00037 0.00031 0.00001 0.00001 0.0037 0.00321 0.00011 0.00005 0.0037 0.00321 0.00011 0.00005 0.0038 0.008239 0.08239 0.08272

CASE= 0 0/F P, ATM 40.00 P, PSIA 587. T, DEG K 1500. T, DEG F 2240. RHO, G/CC 9.4168 M, MOL WT 28.97 CP, CAL/(G)(K) 0.318 GAMMA (S) 1.274 SON VEL,M/SEC 740.	8 587.8 587.8 0 1400.0 1300.0 3 2060.3 1880.3 3 1.0089-2 1.0866-2 1. 7 28.977 28.977 3 0.3139 0.3034 7 1.2796 1.2848	5000 PERCENT 40,000 40,000 587.8 587.8 1200.0 1100.8 1520.3 1520.3 1771-2 1.2841-2 28.977 0.3047 0.2997 1.2965 666.6 639.8	40.000 40.000 587.8 587.8 1000.0 900.0 1340.3 1160.3	3 597.8 597.8 800.0 700.0 8 980.3 800.3 2 1.7657-2 2.0179-2 2 8.977 28.977 2 0.2816 0.2746 2 1.3220 1.3329	40.000 40.000 587.8 587.8 600.0 500.0 620.3 440.3 2.3542-2 2.8251-2 28.977 28.977 0.2605 0.2608 1.3447 1.3568 481.2 441.2	40.000 40.000 587.8 587.8 400.0 300.0 260.3 80.3 3.6707-2 5.1948-2 30.121 31.970 0.8557 0.2988 1,2084 1.2715 365.3 315.0
MOLE FRACTIONS AR CO2 0.0993 H20(L) 0.0000 H20 0.0964 N0 0.0006 N02 0.0000 N2 0.7437 OH 0.0000 02 0.0530	2 0.09932 0.09932 (0.00000 0.00000 0 0 0.09441 0.09442 (5 0.00039 0.00021 (1 0.00001 0.09001 0 0 0.74383 0.74392 (2 0.00001 0.00000 0	0.00P88 0.00888 0.09532 0.0932 0.00000 0.00000 0.09442 0.09442 0.00011 0.00005 0.74397 0.74400 0.00000 0.00000 0.05329 0.05333	0.00868 0.0088 0.09932 0.0993 0.00000 0.00000 0.09442 0.0904 0.00002 0.0000 0.00000 0.00000 0.74402 0.74402 0.00000 0.00000 0.05334 0.0533	2 0.09932 0.09932 0.00000 0.00000 2 0.09442 0.09442 0.00000 0.00000 0 0.00000 0.00000 2 0.74402 0.74403 0 0.00000 0.00000	0.09932 0.09932 0.00000 0.00000 0.09442 0.0000 0.00000 0.00000 0.00000 0.00000 0.74403 0.74403 0.00000 0.00000	0.00888 0.00888 0.09932 0.09932 0.03798 0.00793 0.05644 0.00079 0.00000 0.00000 0.74403 0.74403 0.00000 0.00000 0.05335 0.05335
P, ATM 50.00 P, PSIA 734. T, DEG K 2800. T, DEG F 4580.	8 734.8 734.8 0 2700.0 2600.3 3 4400.3 4220.3 3 6.5024-3 6.7651-3 7. 9 28.812 28.866 2 0.4551 0.4254 7 1.2013 1.2103	50.000 50.000 734.8 734.8 2500.0 2400.0 4040.3 3860.3	50.000 50.000 734.8 734.8 2300.0 2200.0 3680.3 3500.3	734.8 734.8 2100.0 2000.0 3 3320.3 3140.3 8 8.4051-3 8.8267-3 0 28.967 28.972 0 0.3487 0.3419 5 1.2472 1.2523	28.974 28.976 0.3363 0.3314	50.000 50.000 734.8 734.8 1700.0 1600.0 2600.3 2420.3 1.0386-2 1.1035-2 28.976 28.977 0.3269 0.3225 1.2657 1.2701 785.7 763.6
MOLE FRACTIONS AR CO 0.0088 CO2 0.0956 H 0.0004 H02 0.0000 H2 0.012 H20 0.088 N0 0.0173 N02 0.0000 N2 0.7232 0 0.0016 OH 0.0088	2 0.00589 0.00375 (1 0.00587 0.09519 (1 0.00023 0.00013 (4 0.00003 0.00002 (6 0.00086 0.00056 (5 0.08969 0.00957 (6 0.01512 0.01304 (3 0.00003 0.00003 (3 0.00003 0.00003 (3 0.00110 0.00071 (1 0.00641 0.00490 (0.00886 0.00887 0.00228 0.00132 0.09680 0.09785 0.00007 0.00003 0.00003 0.00002 0.01112 0.00936 0.00195 0.09270 0.01112 0.00936 0.00036 0.73816 0.00036 0.00267 0.00366 0.00267 0.00366 0.00267	0.00887 0.0088 0.00072 0.0003 0.09851 0.0988 0.00002 0.0000 0.00001 0.0000 0.09325 0.0936 0.00775 0.0063 0.0003 0.7004 0.00015 0.0000 0.0015 0.0000 0.0018 0.0018	7 0.0018 0.0008 0.09911 0.09922 0.00000 0.0000 7 0.00001 0.00000 0 0.00502 0.0030 0 0.00502 0.0030 0 0.00502 0.0030 0 0.74126 0.74193 0 0.00004 0.00002	0.09928 0.09930 0.00000 0.00000 0.00000 0.00000 0.09424 0.09432 0.00294 0.00215 0.00002 0.00002 0.74248 0.74291 0.00001 0.00000 0.00032 0.00018	0.00888 0.00888 0.00000 0.00000 0.09932 0.09932 0.00000 0.00000 0.00000 0.00000 0.09436 0.09439 0.00151 0.00102 0.00002 0.00001 0.74325 0.74351 0.00000 0.00000 0.00001 0.00005 0.05256 0.05282

CASE= 0 0/F= P, ATM 0.5000 P, PS1A 7.3 T, DEG K 1500.0 T, DEG F 2240.3 RH0, G/CC 1.1772-4 M, MOL WT 28.979 CP, CAL//(G1/K) 0.3285 GAMMA (5) 1.2646 SON VEL,M/SEC 737.7	14,6540 F/A= 0.06824 0.5000 0.5000 0.5000 0.5001 0.7 3 7.3 7.3 7.3 1400.0 1300.0 1200.1 2606.3 1880.3 1700.1 28.980 28.981 28.98 0.3224 0.3173 0.312: 1.2704 1.2758 1.2811 714.3 689.8 664	3 7.3 7.3 7.3 0 1100.0 1000.0 900.0 3 1520.3 1340.3 1160.3 4 1.6054-4 1.7659-4 1.9621-4 1 28.981 28.981 28.981 0.3071 0.3015 0.2951 3 1.2875 1.2944 1.3027	7.3 7.3 7.3 800.0 700.0 600.1 8 980.3 800.3 620.3 12.2074-4 2.5227-4 2.9432-1 28.981 28.981 28.98 0.2880 0.2806 0.273 7 1.3124 1.3234 1.335.	7.3 7.3 7.3 500.0 400.0 300.0 3 440.3 260.3 80.3 4 3.5318-4 4.4148-4 6.2730-4 1 28.981 28.981 30.884 0.2658 0.2590 1.7616 3 1.3477 1.3600 1.1374
MOLE FRACTIONS AR 0.00873 C0 0.00011 C02 0.13303 H2 0.00004 H20 0.12662 N0 0.00002 N2 0.73136 OH 0.00001 02 0.00006	0.00873 0.00873 0.0067 0.00004 0.00001 0.0000 0.13312 0.13315 0.13313 0.00002 0.00001 0.00000 0.12666 0.12667 0.2661 0.00001 0.00000 0.00000 0.73140 0.73142 0.7314 0.00001 0.00000 0.00000 0.00001 0.00000 0.00000	0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000	0 0.0000 0.00000 0.00000 0 0.13316 0.13316 0.13336 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.12668 0.12668 0.12668 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.73143 0.73143 0.7314	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CASE= 0 0/F= P, ATM 1.0000 P, PS1A 14.7 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.1942-4 M, MOL WT 27.438 CP, CAL//G/IK/ 0.9926 GAMMA (5) 1.1394 SON VEL,M/SEC 983.2	14,6540 F/A= 0,06824 1,0000 1,0000 1,000 14,7 14,7 14,7 2700,0 2600,0 2500,0 4400,3 4220,3 4040,1 1,2541-4 1,3161-4 1,3806-27,785 28,079 28,32; 0,8952 0,8010 0,711 1,1421 1,1466 1,153 960,6 939,6 920,0	7 14.7 14.7 14.7 2400.0 2300.0 2200.0 3 3860.3 3680.3 3500.3 4 1.4480-4 1.5189-4 1.5940-4 2 28.516 28.665 28.775 0.6295 0.5569 0.4955 3 1.1623 1.1736 1.1870	14.7 14.7 14.7 2100.0 2000.0 1900.1 3 3320.3 3140.3 2960.3 1 1.6744-4 1.7613-4 1.9562- 5 28.853 28.905 28.93 0.4458 0.4075 0.379 1 1.2015 1.2162 1.229	7 14.7 14.7 14.7 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 4 1.9606-4 2.0768-4 2.2070-4 9 28.959 28.970 28.976 0.3588 0.3446 0.3348 9 1.2417 1.2513 1.2590
MOLE FHACTIONS AR CO 0.00827 CO 0.06165 CO2 0.06442 H 0.00926 H02 0.00001 H2 0.01295 H20 0.03281 N0 0.01223 N2 0.68637 O 0.00845 OH 0.01910 O2 0.02419	0.00837 0.00846 0.0085 0.05122 0.04085 0.0312 0.07645 0.08817 0.0989 0.00571 0.00337 0.0013 0.00001 0.00000 0.0000 0.10020 0.00781 0.0058 0.10099 0.10773 0.1131 0.0096 0.00768 0.0057 0.69630 0.70482 0.7119; 0.00519 0.00302 0.0016 0.01480 0.01101 0.0078	0 0.02278 0.01587 0.01052 3 0.10824 0.11584 0.1217 1 0.00103 0.00052 0.00022 0 0.00000 0.00000 0.00000 2 0.00422 0.00297 0.00202 0 0.11723 0.12032 0.12252 0 0.71761 0.72202 0.72528 6 0.00886 0.00041 0.00018 5 0.00536 0.00350 0.00218	2 0.0061 0.00393 0.0021° 0.12596 0.12888 0.1307° 0.00011 0.00005 0.00000 0.00003 0.00000 0.00000 0.00133 0.00084 0.0005° 4 0.12409 0.12513 0.1258 0.00122 0.00073 0.0004 0.72759 0.72916 0.73010 0.00008 0.00003 0.0000 0.00008 0.00003 0.0000	0 0 00114 0 00054 0 000024 0 0 00114 0 100054 0 13290 0 0 00001 0 00000 0 000000 0 0 00000 0 00000 0 000000 0 0 00029 0 00015 0 000008 0 0 0 12620 0 12644 0 12657 1 0 000022 0 00011 0 00005 0 0 73076 0 73111 0 73129 1 0 00000 0 000000 0 000000 7 0 00018 0 00008 0 000003

ADD H201L) ADD CISI

CASE= 0 0/F= 14,288 P, ATM 1,5000 1,55 P, PSIA 22.0 2.0 T, DEG K 1500.0 1400 T, DEG F 2240.3 2066 RHO, G/CC 3,5141-4 3,7651 M, MOL WT 28,836 28,8 CP, CAL//(G)/(K) 0,3262 0,33 GAMMA (S) 1,2679 1,22 SON VEL,M/SEC 740.5 716	000 1,5000 1,5000 1,5000 22.0 22.0 22.0 22.0 22.0 22.0 10.0 1300.0 1200.0 1100.0 1520.3 1880.3 1700.3 1520.3 1-4 4.0548-4 4.3927-4 4.7920-4 836 28.836 28.836 28.836 28.836 12.836 28.836 1.2857 1.2804 1.2857	1,5000 1,5000 1,5000 1 22.0 22.0 22.0 22.0 1000.0 900.0 800.0 1340.3 1160.3 980.3 5,2712-4 5,8569-4 6,5890-4 7,5 28,836 28,836 28,836 28,836 0,2926 0,2924 0,2926 1,2917 1,2990 1,3082 1	1.5000 1.5000 1.5000 1.5000 1.5000 22.0 22.0 22.0 22.0 22.0 700.0 600.0 500.0 400.0 300.0 800.3 620.3 440.3 260.3 80.3 311-4 8.8056-4 1.0590-3 1.3244-3 1.9822-3 8.839 28.902 28.966 28.980 32.530 0.2883 0.2995 0.2743 0.2602 0.7427 1.3164 1.3115 1.3380 1.3583 1.1654 515.4 475.8 438.2 394.8 298.9
MOLE FRACTIONS AR C(5) 0.000867 0.000 CH4 0.00000 0.000 C00 0.0027 0.000 H20 0.12840 0.128 H20 0.00278 0.000 H20 0.12630 0.128 NH3 0.00000 0.000 N2 0.72657 0.728	000 0.00000 0.00000 0.00000 000 0.00000 0.00000 0.00000 692 0.00647 0.00590 0.00517 876 0.13921 0.12978 0.13050 133 0.00358 0.00415 0.00488 000 0.00000 0.00000 0.00000 0.12550 0.12493 0.12492 000 0.00000 0.00000 0.00000	0,00000 0,000000	00868 0.00869 0.00871 0.00872 0.00867 00000 0.00000 0.00000 0.00497 00005 0.00114 0.00225 0.00250 0.00000 0104 0.00021 0.00001 0.00000 0.00002 13460 0.13464 0.13403 0.13385 0.13069 00000 0.00000 0.00000 0.00000 0.00000 12019 0.12180 0.12407 0.12463 0.02048 00001 0.00002 0.00001 0.00002 0.00001 72664 0.72823 0.72984 0.73021 0.72661
T, DEG K 2800.0 270(T, DEG F 4580.3 440(RHO, G/CC 2.4087-4 2.523; M, MOL WT 27,571 27,5 CP, CAL/(G)(K) 0.8808 0.75 GAMMA (S) 1.1452 1.14	000 2.0000 2.0000 2.0000 9.4 29.4 29.4 29.4 0.0 2600.0 2500.0 2400.0 0.3 4220.3 4040.3 3860.3 7-4 2.6433-4 2.7682-4 2.8993-4 956 0.7185 0.6424 0.5720	2 2.0000 2.0000 2.0000 2 29.4 29.4 29.4 2300.0 2200.0 2100.0 2 3 3680.3 3500.3 3320.3 3320.3 320.3 2 2 28.665 28.746 28.797 2 0 1.05085 0.4520 0.4028	2.0000 2.0000 2.0000 2.0000 2.0000 29.4 29.4 29.4 29.4 29.4 2000.0 1900.0 1800.0 1700.0 1600.0 8140.3 2960.3 2780.3 2600.3 2420.3 5124-4 3.6985-4 3.9044-4 4.1342-4 4.3927-4 82.822 28.831 28.835 28.836 28.836 0.3661 0.3464 0.3377 0.3331 0.3295 1.2378 1.2504 1.2570 1.2611 1.2645 845.1 827.7 807.7 786.2 763.8
MOLE FRACTIONS AR CO 0.085671 0.044 CO2 0.07348 0.084 H 0.00615 0.004 H2 0.01142 0.001 H2 0.10151 0.103 N0 0.01077 0.004 N2 0.69183 0.704 OH 0.01573 0.01 OH 0.01573 0.01 O2 0.01884 0.015	691 0.03759 0.02925 0.02225 0.02224	0.01669 0.01268 0.01013 0. 0.011819 0.12258 0.12536 0. 0.00038 0.00020 0.00010 0. 0.000315 0.00048 0.00208 0. 0.00198 0.00199 0.12640 0. 0.00198 0.00113 0.0056 0. 0.72127 0.72374 0.72530 0. 0.00028 0.00028 0.00028 0.00028 0.00247 0.00040 0.00020 0.00020 0.00247 0.00042 0.00074 0.	.00867 0.00867 0.00867 0.00867 0.00867 .00883 0.00828 0.00800 0.00779 0.00756 .12678 0.12738 0.12767 0.12789 0.12812 .00005 0.00002 0.00001 0.00000 0.00000 .00000 0.00000 0.00000 0.00000 0.00000 .00194 0.00197 0.00210 0.00227 0.00250 .12688 0.12701 0.12695 0.12680 0.12658 .00023 0.00008 0.00002 0.00001 0.00000 .72610 0.72642 0.72652 0.72656 0.72657 .00001 0.00000 0.00000 0.00000 .00034 0.00003 0.00005 0.00001 0.00000 .00018 0.00003 0.00001 0.00000 0.00000

ADD CIS) ADD H20(L)

P. PSIA 44.1 T, DEG K 1500.0 T, DEG F 2240.3 RHD, G/CC 6.8357-4 7. MOL WT 28.046 CP, CAL/IGIIKI 0.3338	3.0000 3.0000 3.0000 44.1 44.1 44.1 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	PERCENT FUEL= 7.4074 F 3.0000 3.0000 3.0000 44.1 44.1 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 9.3214-4 1.0254-3 1.1396-3 28.046 28.046 28.053 0.3245 0.3229 0.3285 1.2794 1.2813 1.2794 645.9 616.3 584.2	HI= 1,1723 3,0000 3,0000 3,000 44.1 44.1 44.1 44. 800.0 700.0 600.0 980.3 800.3 620. 1,2888-3 1,4952-3 1,7600- 28,202 28,628 28,88 0,4349 0,4040 0,322 1,2358 1,2490 1,290 539.9 503.9 472.	1 44.1 44.1 44.1 500.0 400.0 300.0 3 440.3 260.3 80.3 3 2.1181-3 2.6490-3 4.0925-3 5 28.968 28.983 33.582 6 0.2827 0.2679 0.5180 6 1.3251 1.3444 1.1828
C1S1 0.00000 0 CH4 0.00000 0 C0 0.04458 0 C02 0.10480 0 H2 0.02015 0 H20:L1 0.00000 0 H20 0.12200 0	0.00836 0.00836 0.00836 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.04259 0.04013 0.03708 0.02259 0.10925 0.11230 0.02214 0.02460 0.00000 0.00000 0.00000 0.00000 0.12001 0.11755 0.11450 0.00000 0.00000 0.00000 0.70012 0.70012 0.70012	0.00836 0.00836 0.00836 0.00000 0.00000 0.00000 0.00000 0.00000 0.00012 0.03328 0.02857 0.02269 0.11609 0.12081 0.12661 0.03144 0.03613 0.44155 0.00000 0.00000 0.00000 0.11070 0.10600 0.10036 0.00000 0.00001 0.00003 0.70012 0.70012 0.70028	0.00841 0.00853 0.0085 0.00000 0.00000 0.0037 0.00276 0.01035 0.0129 0.01331 0.00307 0.0002 0.13414 0.13906 0.1361 0.04065 0.02149 0.0065 0.00000 0.00000 0.0000 0.09668 0.10280 0.1133 0.00006 0.00008 0.0000 0.70399 0.71462 0.7181	5 0.01294 0.02233 0.03235 0.00974 0.00516 0.00001 3 0.00001 0.00000 0.00000 1 0.12960 0.12342 0.11702 0 0.0010 0.00007 0.00000 0 0.00000 0.00000 0.13249 0 0.12430 0.13321 0.00965 6 0.00003 0.00001 0.00000
P, PSIA 58.8 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 4.7878-4 5. M, MOL WT 27.501 CP, CAL/(GI(K) 0.7438	4.0000 4.0000 4.0000 58.8 58.8 58.8 2700.0 2500.0 2500.0 4400.3 4220.3 4040.3	PERCENT FUEL= 7,4074 F 4,0000 4,0000 4,0000 58.8 58.8 58.8 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3 5,6845-4 5,9379-4 6,2112-4 27,987 28,017 28,032 0,4213 0,3858 0,3659 1,2182 1,2340 1,2448 932.0 917.7 901.3	#HE 1.1723 4.0000 4.0000 4.0000 58.8 58.8 J8. 2100.0 2000.0 1900. 3320.3 3140.3 2960. 6.5087-4 6.8350-4 7.1951- 28.039 28.043 28.04 0.3549 0.3495 0.344 1.2517 1.2563 1.259 882.9 863.1 842.	8 58.8 58.8 58.8 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 4 7.5951-4 8.0419-4 8.5446-4 4 28.045 28.046 28.046 4 0.3413 0.3387 0.3362 5 1.2622 1.2646 1.2670
CO 0.07120 0 CO2 0.07528 0 H 0.00513 0 H2 0.01593 G H20 0.11553 0 N0 0.00618 0 N2 0.68343 0 0 0.00214 0 OH 0.01072 0	0,00825 0,00830 0,00832 0,06473 0,05967 0,05619 0,08278 0,08860 0,09258 0,00337 0,00219 0,00140 0,01424 0,01312 0,01257 0,12071 0,12443 0,12681 0,00420 0,00262 0,00148 0,68928 0,69363 0,69654 0,00111 0,00052 0,00022 0,00384 0,00490 0,00300 0,00384 0,00202 0,00099	0.00834 0.00835 0.00835 0.05406 0.05277 0.05190 0.09501 0.09645 0.09740 0.00088 0.00054 0.00032 0.01247 0.01268 0.01309 0.12809 0.12860 0.12861 0.00076 0.00036 0.00015 0.69827 0.69921 0.69969 0.00008 0.00003 0.00001 0.00170 0.00091 0.00045 0.00034 0.00011 0.00003	0.00836 0.00836 0.0083 0.05117 0.05043 0.0496 0.09817 0.09893 0.0997 0.00018 0.00010 0.0000 0.1364 0.01431 0.0151 0.12828 0.12773 0.1270 0.00006 0.00002 0.0000 0.69992 0.70003 0.7000 0.09000 0.00000 0.0000 0.00021 0.00009 0.0000 0.00001 0.00000 0.0000	2 0.04868 0.04756 0.04621 0.10070 0.10182 0.10317 5 0.00002 0.00001 0.00000 1 0.01605 0.01717 0.01852 0.12608 0.12497 0.12363 1 0.00000 0.00000 0.00000 3 0.70010 0.70011 0.70011 0.00000 0.00000 0.00000 3 0.00001 0.00000 0.00000

ADD C(S) ADD H2O(L)

CASE= 0 P, ATM P, PSIA I, DEG K I, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F= 11.1111 6.0000 6.0000 88.2 88.2 1500.0 1400.0 2240.3 2060.3 3313-3 1.4264-3 27.311 27.311 0.3403 0.3385 1.2719 1.2738 762.1 736.8	88.2 88.2 1300.0 1200.0 1880.3 1700.3 1.5362-3 1.6642-3 27.311 27.311 0.3369 0.3357 1.2755 1.2768	6.0000 6.000 88.2 88, 1100.0 1000, 1520.3 1340, 1,8155-3 1.9979- 27.312 27.32 0.3357 0.347 1.2772 1.271	2 88.2 88.2 900.0 800.0 3 1160.3 980.3 3 2.2341-3 2.5746-3 3 27.498 28.169 0.5026 0.5945 3 1.2186 1.1946	6.0000 6.000 88.2 88. 700.0 600. 800.3 620.	88.2 88.2 500.0 400.0 3 440.3 260.3 3 4.2371-3 5.2985-3 8 3 28.973 28.985 3 0.2844 0.2713 5 1.3214 1.3384	6.0000 88.2 300.0 80.3 3.3996-3 34.462 0.4162 1.1942 294.0
C1S) CH4 C0 C02 H2 H20(L) H20 H20 H30 C02	0.00806 0.00806 0.00000 0.00000 0.00000 0.00000 0.07610 0.07308 0.08601 0.08903 0.0346 0.04248 0.00000 0.00000 0.11484 0.1182 0.00000 0.00000 0.67552 0.67552	0.00000 0.00000 0.00000 0.00000 0.06941 0.06491 0.09270 0.09720 0.04614 0.05063 0.00000 0.00000 0.10815 0.10365 0.00001 0.00001	0.00000 0.0000 0.00001 0.0002 0.05935 0.0521 0.10276 0.1098 0.05614 0.0625 0.00000 0.0000 0.09811 0.0913 0.00002 0.0000	0 0.00000 0.00246 0 0.00337 0.01436 9 0.03913 0.01492 0 0.12071 0.13504 8 0.06358 0.04141 0 0.00000 0.00000 3 0.08488 0.08843 5 0.00010 0.00013	0.00834 0.0083 0.01579 0.0247 0.01694 0.0160 0.00230 0.0001 0.13259 0.1262 0.01767 0.0051 0.00000 0.0000 0.10782 0.1218 0.00011 0.00000 0.69843 0.6972	3 0.03452 0.04539 (7 0.01210 0.00656 (9 0.00001 0.00000 (9 0.11941 0.11229 (2 0.00005 0.00006 (0 0.00000 0.00000 (0 0.13292 0.14314 (3 0.00004 0.00001 (0.00806 0.05778 0.00000 0.00000 0.10433 0.00000 0.14972 0.00458 0.00000 0.67552
CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC I M, MOL WT CP, CAL/IG!!K! GAPMA (S) SON VEL,M/SEC	0/F= 11.1111 10.000 10.000 147.0 147.0 2800.0 2700.0 4580.3 4400.3 1794-3 1.2268-3 27.098 27.180 0.5423 0.4788 1.1909 1.2059 1011.5 998.0	147.0 147.0 2600.0 2500.0 4220.3 4040.3 1.2765-3 1.3291-3 27.233 27.266 0.4325 0.4014 1.2207 1.2333	10.000 10.000 147.0 147.0 2400.0 2300. 3860.3 3680. 11.3855-3 1.4464- 27.286 27.29 0.3814 0.388 1.2430 1.250	0 147.0 147.0 0 2200.0 2100.0 3 3500.3 3320.3 3 1.5125-3 1.5847-3 7 27.304 27.307 7 0.3606 0.3553 1 1.2551 1.2587	10.000 10.00 147.0 117. 2000.0 1900. 3140.3 2960.	147.0 147.0 1800.0 1700.0 3 2780.3 2600.3 3 1,8490-3 1,9578-3 2 27,311 27,311 27,311 27,311 3 1,2660 1,2680	10.000 147.0 1600.0 2420.3 20802-3 27.311 0.3423 1.2700 786.5
CO CO2 H H2 H20 NO CO	0.00800 0.00803 0.09495 0.09275 0.06589 0.06658 0.00413 0.00285 0.12247 0.12484 0.00254 0.00152 0.66898 0.67153 0.00056 0.00026 0.00056 0.0036	0.09121 0.09007 0.07044 0.07177 0.00193 0.00127 0.02559 0.02598 0.12618 0.12677 0.00085 0.00045 0.67318 0.67419 0.00011 0.00004 0.00225 0.00132	0.08915 0.0882 0.07281 0.0737 0.00081 0.0005 0.02656 0.0272 0.12682 0.1264 0.00022 0.0001 0.67479 0.6751 0.00001 0.0000 0.000073 0.0003	8 0.08739 0.08641 5 0.07468 0.07568 0 0.00030 0.00017 9 0.02814 0.02912 9 0.12588 0.12503 0 0.00004 0.00002 3 0.67532 0.67542 0 0.00000 0.00000	0.00806 0.0080 0.08529 0.0839 0.07681 0.0781 0.00009 0.0000 0.03025 0.0315 0.12398 0.1227 0.00001 0.0000 0.67547 0.6755 0.00000 0.0000 0.00004 0.0000 0.00004 0.0000	9 0.08249 0.08071 (1 0.07962 0.08140 (4 0.00002 0.00001 (5 0.03307 0.03485 (1 0.12121 0.11944 (0 0.00000 0.00000 (0 0.67551 0.67552 (0 0.00000 0.00000 (1 0.00000 0.00000 (1 0.00000 0.00000 (0.00806 0.07861 0.08350 0.00000 0.03695 0.11735 0.00000 0.67552 0.00000 0.00000

ADD CIST ADD H201L1

P, ATM 15.000 P, PSIA 220.4 T, DEG K 1500.0 T, DEG F 2240.3	2060.3 1880.3 1700.3 3.4767-3 3.7442-3 4.0566-3 26.627 26.627 26.627 0.3445 0.3435 0.3444 1.2767 1.2778 1.2778	220.4 220.4 220. 1100.0 1000.0 900. 1520.3 1340.3 1160.	4 220.4 220.4 220.4 220.0 600 3 800.3 620 3 800.3 621 3 8.815.2 28.401 28.782 28.401 20.5074 0.3697 0.307 1.2122 1.2592 1.25	.4 220.4 220.4 220.4 .0 500.0 400.0 300.0 .3 440.3 260.3 80.3 -3 1.0595-2 1.3373-2 2.1499-2 34 28.980 29.262 35.284 05 0.2858 2.6314 0.3611 54 1.3182 1.1725 1.2000
MOLE FRACTIONS AR C1SI 0.00079 CH4 0.00000 C0 0.10313 C02 0.07085 H2 0.05581 H201L1 0.00000 H20 0.10580 NH3 0.00001 N2 0.65260	0.00000 0.00000 0.00000 0.00000 0.00000 0.00004 0.0958 0.09529 0.09001 0.07440 0.07869 0.08396 0.06334 0.06761 0.07275 0.00000 0.00000 0.00000 0.10226 0.09757 0.09276 0.00002 0.00003 0.00005	0.00000 0.00000 0.0000 0.08645 0.08002 0.0808 0.00009 0.00016 0.0002	2 0.02472 0.03502 0.04 8 0.02004 0.02146 0.01 5 0.00905 0.00139 0.00 7 0.12719 0.12361 0.11 2 0.03058 0.01246 0.00 10 0.00000 0.00000 0.00 10 0.00134 0.1714 0.12 11 0.00021 0.00017 0.00	777 0.05422 0.06784 0.08148 49 0.01465 0.00740 0.00000 11 0.00000 0.00000 0.00000 41 0.11022 0.10132 0.09251 553 0.00059 0.00004 0.00000 0.00000 0.00059 0.16388 41 0.14050 0.14446 0.00174 111 0.00006 0.00002 0.00000
P, ATM 20.000 P, PSIA 293.9 T, DEG K 2800.0 T, DEG F 4580.3	293.9 293.9 293.9 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 2.3970-3 2.4918-3 2.5932-3 26.553 26.581 26.599 0.4247 0.4019 0.3861 1.2300 1.2395 1.2472	293.9 293.9 293. 2400.0 2300.0 2200. 3860.3 3680.3 3500.	9 293.9 293.9 293.9 2) 0 2100.0 2000.0 1900 0 3 3320.3 3140.3 2966 0 3 3,0900-3 3,2447-3 3,4150 10 26.624 26.625 26.0 10 1,2637 1,2660 1,20 0 1,2637 1,2660 1,20	1.9 293.9 293.9 293.9 1.0 1800.0 1700.0 1600.0 1.3 2780.3 2600.3 2420.3 1.3 3.6054-3 3.8175-3 4.0561-3 2.6 26.626 26.626 26.627 2.3 0.3513 0.3494 0.3476 1.269 1.2717 1.2735
MOLE FRACTIONS AR C0 0.12197 C02 0.05127 H 0.00371 H2 0.04161 H20 0.11991 NH3 0.00000 NO 0.00107 N2 0.64926 O 0.00017 OH 0.00308 O2 0.00020	0.12102 0.12018 0.11937 0.05249 0.05350 0.05413 0.00259 0.00176 0.00116 0.04204 0.04265 0.04339 0.12086 0.12122 0.12114 0.00000 0.00000 0.00000 0.00062 0.00034 0.00018 0.65050 0.65131 0.65183 0.00008 0.00003 0.00001 0.00195 0.00019 0.00069	0.11853 0.11762 0.1165 0.05534 0.00631 0.0573 0.00074 0.00046 0.0002 0.04424 0.04519 0.0462 0.12072 0.12004 0.1191 0.00000 0.00000 0.0000 0.00009 0.00004 0.0000 0.65215 0.65235 0.6524 0.00000 0.00000 0.0000	19	10

CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0/F 2.000 29. 2800. 4580. 2.5007- 28.72 0.472 1.203 987.	0 2.0000 4 29.4 0 2700.0 3 4400.3 4 2.6003-4 8 28.805 6 0.4350 3 1.2135	F/A= 0. 2.0000 29.4 2600.0 4220.3 2.7055-4 28.861 0.4043 1.2241 957.5	2.0000 29.4 2500.0 4040.3	PERCENT F 2.0000 29.4 2400.0 3860.3 2.9375-4 28.925 0.3607 1.2444 926.5	2.0000 29.4 2300.0 3680.3	2.0000 29.4 2200.0 3500.3	PHI= 0.000 2.0000 29.4 2100.0 3320.3 3.3610-4 28.958 0.3257 1.2689 874.7	2.0000 29.4 2000.0 3140.3	2.0000 29.4 1900.0 2960.3 3.7154-4 28.963 0.3126 1.2817 836.1	2.0000 29.4 1800.0 2780.3 3.9219-4 28.964 0.3075 1.2875 815.6	2.0000 29.4 1700.0 2600.3 4.1527-4 28.964 0.3027 1.2931 794.4	2.0000 29.4 1600.0 2420.3 4.4123-4 28.964 0.2983 1.2988 772.3
MOLE FRACTIONS AR CO CC2 NO NO2 N2 O 0	0.0092 0.0000 0.0002 0.0350 0.0000 0.7569 0.0162	6 0.00004 4 0.00026 3 0.03087 3 0.00003 9 0.76115 9 0.01099	0.00929 0,00003 0.00027 0.02682 0.00003 0.76467 0.09716 0.19173	0.00939 0.00028 0.00028 0.02294 0.00003 0.76765 0.00450 6.19528	0.00931 0.00001 0.00029 0.01932 0.00002 0.77017 0.00271 0.19817	0.00932 0.00001 0.00029 0.01598 0.00002 0.77229 0.00156 0.20053	0.00932 0.00000 0.00030 0.0127 0.00002 0.77407 0.00086 0.20247	0.00932 0.00000 0.00030 0.01030 0.00002 0.77557 0.00044 0.20405	0.00932 0.00000 0.00030 0.00798 0.00002 0.77682 0.00021 0.20535	0.00932 0.00600 0.00030 0.00601 0.00002 0.77785 0.00010 0.20641	0.00932 0.00000 0.00030 0.00438 0.00001 0.77868 0.00004 0.20726	0.00932 0.00000 0.00030 0.00308 0.00001 0.77934 0.00001 0.20793	0.00932 0.00000 0.0030 0.00207 0.00001 0.77985 0.00000 0.20844
CASE= 0 P, ATM P, PS1A T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	2.000 29. 1500. 2240.	0 2.0000 4 29.4 0 1400.0 3 2060.3 4 5.0426-4 4 28.964 0 0.2898 4 1.3102	F/A= 0. 2.0000 29.4 1300.0 1880.3 5.4305.4 28.964 0.2856 1.3161 700.8	2,0000 29,4 1200.0 1700.3	PERCENT F 2.0000 29.4 1100.0 1520.3 6.4178-4 28.964 0.2773 1.3287 647.7	2,0000 29,4 1000.0 1340.3	2.0000 29.4 900.0 1160.3 7.8440-4 28.964 0.2681 1.3440	PHI= 0.000 2.0000 29.4 800.0 980.3 8.8245-4 28.964 0.2626 1.3536 557.5	2.0000 29.4 700.0 800.3 1.0085-3 28.964 0.2569 1.3644 523.6	2.0000 29.4 600.0 620.3 1.17664 0.2512 1.3757 486.8	2.0000 29.4 500.0 440.3 1.4119-3 28.964 0.2461 1.3865 446.1	2.0000 29.4 400.0 260.3 1.7649-3 28.964 0.2422 1.3952 400.3	2.0000 29.4 300.0 80.3 2.3532-3 28.964 0.2402 1.3999 347.2
MOLE FRACTIONS AR CO2 NO NO2 N2 O2	0.0093 0.0003 0.0013 0.0000 0.7802 0.2088	0.00030 0.00078 0.00001 0.78050	0.00932 0.00030 0.00043 0.00001 0,78067 0.20926	0.00932 0.00030 0.00021 0.00000 0.78078 0.20937	0.00932 0.00030 0.00009 0.00000 0,78084 0.20944	0.00932 0.00030 0.00004 0.00000 0.78087 0.20947	0.00030	0.00932 0.00030 0.00000 0.00000 0.78089 0.20948	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949	0.00932 0.00030 0.00000 0.00000 0.78089 0.20949

ADD H201L1

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CASE = 0 C/F=100.0000
                                              F/A= 0.01000
                                                                   PERCENT FUEL= 0.9901 PHI= 0.1465
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P, ATM 3.0000 3.0000
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T. DEG K
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T. DEG F
                    2240.3 2060.3
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                                                        1700.3 1520.3
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                                                                                                                                                            260.3
RHO, G/CC
                   7.0602-4 7.5645-4 8.1464-4 8.8253-4 9.6276-4 1.0590-3 1.1767-3 1.3238-3 1.5129-3 1.7651-3 2.1181-3 2.6476-3 3.5592-3
M, MOL WT
                      28.967
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CP. CAL/(GI(K)
                    0.2994
                                  0.2950
GAMMA (S)
                     1.2974
                                  1.3031
                                              1,3090
                                                          1.3151
                                                                      1.3215
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SON VEL.M/SEC
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MOLE FRACTIONS
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C02
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                   0.00120 0.00072
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      CASE = 0 0/F=100.0000
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                                                        4040.3 3860.3 3680.3 3500.3 3320.3 3140.3 2950.3
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HO, G/CC 4,9934-4 5,1938-4 5,4056-4 5,86308-4 5,8719-4 6,1318-4 6,4137-4 6,7212-4 7,0586-4 7,4309-4 7,8442-4 8,3059-4 8,8252-4 M, MOL WT 28,682 28,768 28,832 28,878 28,910 28,932 28,946 28,955 28,960 28,963 28,965 28,966 28,967 CP, CAL/(G)(K) 0,4963 0,4575 0,4246 0,3976 0,3760 0,3590 0,3457 0,3353 0,3269 0,3199 0,3140 0,3087 0,3039
                                                                    28.910 28.932 28.946 28.955 28.966 0.3760 0.3590 0.3457 0.3353 0.3269 1.2347 1.2441 1.2526 1.2604 1.2675
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GAMMA (S) 1.1954
SON VEL.M/SEC 985.0
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MOLE FRACTIONS
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CO
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C02
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H02

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CASE= 0 0/F= 5 P, ATM 6.0000 P, PSIA 88.2 T, DEG K ;500.0 T, DEG F 2240.3 RHO, G/CC 1.4122-3 1 M, MOL WT 28.969 CP, CAL/(G)(K) 0.3044 GAMMA (S) 1.2910 SON VEL,M/SEC 745.5	6.0000 6.0000 6 88.2 88.2 1400.0 1300.0 1 2060.3 1880.3 1 5130-3 1.6294-3 1.7 28.970 28.970 2 0.2999 0.2955 0.2955 1.2966 1.3023 1	5.0000 6.0000 6 88.2 88.2 1200.0 1100.0 1700.3 1520.3 7652-3 1.9257-3 2. 28.970 28.970	6.0000 6.0000 88.2 88.2 1000.0 900.0 1340.3 1160.3	[= 0.2931 6.0000 6.0000 88.2 88.2 800.0 700.0 980.3 800.3 6478-3 3.0261-3 28.969 28.969 0.2704 0.2642 1.3399 1.3508 554.7 520.9	6,0000 6,0000 88.2 88.2 600.0 500.0 620.3 440.3 3,5304-3 4,2365-3 28,970 28,970 0,2579 0,2522 1,3623 1,3737 484.3 444.0	6,0000 6,0000 88.2 88.2 400.0 300.0 260.3 80.3 5.2956-3 7,3039-3 28.970 29,967 0,2474 0,3752 1,3837 1,2642 398.6 324.4
C02 0.04106 H20(L) 0.00000 H20 0.03885 N0 0.00108 N02 0.00001 N2 0,76517 OH 0.00003	0.04106 0.04106 0. 0.00000 0.00000 0. 0.03886 0.03887 0. 0.00065 0.00036 0. 0.00001 0.00001 0. 0.76539 0.76554 0. 0.00001 0.00000 0.	.04106	.04106	0.00914 0.00514 0.04106 0.04106 0.00000 0.00000 0.03887 0.03887 0.00000 0.00000 0.00000 0.00000 0.76571 0.76571 0.00000 0.00000 0.14521 0.14521	0.00914 0.00914 0.04106 0.04106 0.00000 0.00000 0.03887 0.03887 0.00000 0.00000 0.00000 0.00000 0.76572 0.76572 0.00000 0.00000 0.14521 0.14521	0.00914 0.00914 0.04106 0.04106 0.00000 0.03328 0.03887 0.00556 0.00000 0.00000 0.00000 0.00000 0.76572 0.76572 0.00000 0.00000 0.14521 0.14521
CASE = 0 0/F = 5 P, ATM 10.000 P, PSIA 147.0 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.2500-3 1 M, MOL WT 28.720 CP, CAL/IGIIK1 0.4830 GAMMA (S) 1.1969 SON VEL, M/SEC 985.0	147.0 147.0 2700.0 2600.0 2 4400.3 4220.3 4 .2997-3 1.3523-3 1.4 28.795 28.851 2 0.4483 0.4189 0	10.000 10.000 147.0 147.0 2500.0 2400.0 4040.3 3860.3 4083-3 1.4684-3 1.1 28.891 28.919 5.3948 0.3756	L= 1.9608 PH 10.000 10.000 147.0 147.0 2300.0 2200.0 3680.3 3500.3 5333-3 1.6037-3 1 28.938 28.950 0.3604 0.3483 1.2420 1.2427 906.0 888.6	II = 0.2931 10.000 10.000 147.0 147.0 2100.0 2000.0 3320.3 3140.3 6805-3 1.7488-3 28.958 28.963 0.3388 0.3310 1.2567 1.2631 870.5 851.6	10,000 10,000 147,0 147,0 1900,0 1800,0 29,0.3 2780,3 1,8579-3 1,9612-3 28,966 28,968 0,3244 0,3187 1,2691 1,2747 831,9 811.5	10.000 10.000 147.0 147.0 1700.0 1600.0 2600.3 2420.3 2.0767-3 2.2065-3 28.969 28.969 0.3136 0.3089 1.2802 1.2856 790.3 768.4
CO 0.00478 CO2 0.03593 H 0.00065 HO2 0.00003 H2 0.00063 H20 0.03275 NO 0.02899 NO2 0.00004 N2 0.74461 0 0.00608 OH 0.00962	0.00320 0.00205 0 0.03761 0.03885 0 0.00037 0.00021 0. 0.00003 0.00002 0. 0.00044 0.00029 0. 0.03418 0.03535 0. 0.02545 0.02205 0. 0.00004 0.00004 0. 0.74836 0.75153 0. 0.0049 0.00266 0. 0.00764 0.00591 0.	.00125 0.00072 0 .03970 0.04027 0 .00011 0.00005 0 .00032 0.00001 0 .00032 0.00011 0 .03628 0.03702 0 .01885 0.01587 0 .00004 0.00004 0 .75419 0.75642 0 .00167 0.00101 0 .00446 0.00326 0	.00040 0.00021 .004062 0.04083 .00002 0.00001 .00001 0.00001 .00007 0.00004 .03758 0.03800 .01313 0.01066 .00003 0.00003 .75829 0.75986 .00032 0.00159	0.00914 0.00914 0.00010 0.00004 0.04095 0.04101 0.00000 0.00000 0.00001 0.00000 0.00002 0.00001 0.03830 0.03852 0.00847 0.00657 0.00003 0.00003 0.76117 0.76225 0.09016 0.00008 0.00105 0.00066 0.14169 0.14169	0.00914 0.00914 0.00002 0.00001 0.04104 0.04105 0.00000 0.00000 0.00000 0.00000 0.0366 0.03875 0.00495 0.00361 0.00002 0.00002 0.76314 0.76386 0.00004 0.00001 0.00004 0.00001 0.00040 0.00022 0.14259 0.14332	0.00914 0.00914 0.00000 0.00000 0.04106 0.04106 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.03881 0.03884 0.00254 0.00170 0.00002 0.00002 0.76442 0.76485 0.00001 0.00000 0.00012 0.00006 0.14389 0.14433

P, ATM 15.00(P, PSIA 220.4 T, DEG K 1500.0 T, DEG F 2240.1	4 220.4 220.4 1400.0 1300.0 3 2060.3 1880.3 3 3.7829-3 4.0739-3 2 28.972 28.972 1 0.3047 0.3003 2 1.2905 1.2961	15.000 15.000 220,4 220,4 1200.0 1100.0 1700.3 1520,3	15.000 15.000 1220.4 220.4 220.4 220.4 30.1000.0 900.0 31.340.3 1160.3 3.5.2961-3 5.8845-2 28.972 28.972 20.0.2860 0.2804 4.1.3154 1.3238	220.4 220.4 800.0 700.0 8 980.3 800.3 8 6.6201-3 7.5658-3 2 28.972 28.972 1 0.2742 0.2677 3 1.3336 1.3445	15.000 15.00 220.4 220. 600.0 500. 620.3 440. 8.8268-3 1.0592- 28.972 28.97 0.2612 0.255 1.3561 1.367 483.2 443.	4 220,4 220,4 400,0 300,0 3 260,3 80,3 2 1,3240-2 1,8692-2 2 28,972 30,676 1 0,2499 0,3118 8 1,3784 1,2866
MOLE FRACTIONS AR CO2 0.0608 H20(L) 0.0000 H20 0.05777 N0 0.0009 N02 0.0000 N2 0.7578 OH 0.0000 02 0.1135	5 0.06086 0.06086 0.00000 0.00000 3 0.05773 0.05774 5 0.00057 0.00031 1 0.00001 0.00001 0.75806 0.75819 3 0.00001 0.00000	0.00°05 0.0090 0.06086 0.0608 0.0000 0.0000 0.05774 0.0577 0.00016 0.0000 0.0001 0.0000 0.75827 0.7583 0.00000 0.0000 0.11392 0.11396	5 0.06086 0.06086 0.60000 0.00000 4 0.05774 0.05774 7 0.00003 0.00000 1 0.00000 0.00000 1 0.75833 0.75834 0 0.00000 0.00000	0.06086 0.06086 0.00000 0.00000 0.005774 0.05774 0.00000 0.00000 0.00000 0.00000 0.75835 0.75835 0.00000 0.00000	0.00905 0.0090 0.06086 0.0608 0.00000 0.0000 0.05774 0.0577 0.00000 0.0000 0.00000 0.0000 0.75835 0.7583 0.00000 0.0000 0.11400 0.1140	6 0.06086 0.06086 0 0.00000 0.05556 4 0.05774 0.00218 0 0.00000 0.00000 0 0.00000 0.00000 5 0.75835 0.75835 0 0.00000 0.00000
P, ATM 20.000 P, PSIA 293.° T, DEG K 2800.0 T, DEG F 4580.°	93.9 293.9 293.9 2700.0 2600.0 3 4400.3 4220.3 3 2.6008-3 2.7057-3 2 28.811 28.863 7 0.4447 0.4170 1 1.2057 1.2147	20.000 20.000 293.9 293.9 2500.0 2400.0 4040.3 3860.3	0 20.000 20.000 293.9 293.6 0 2300.0 2200.0 3 3680.3 3500.3 3 3.0671-3 3.2078-5 28.943 28.945 4 0.3622 0.351 0 1.2398 1.246	293.9 293.9 2100.0 2000.0 3 3320.3 3140.3 3 3.3614-3 3.5300-3 4 28.962 28.966 0.3421 0.348 3 1.2533 1.2591	20.000 20.00 293.9 293. 1900.0 1800. 293.0.3 2780. 3,7162-3 3,9228 28.969 28.97 0.3287 0.323 1,2646 1,269 830.4 809.	9 293.9 293.9 0 1700.0 1600.0 3 2600.3 2420.3 3 4.1537-3 4.4134-3 1 28.971 28.972 20 0.3183 0.3136 8 1.2750 1.2800
MOLE FRACTIONS AR 0.00891 C0 0.005451 H 0.0005 H02 0.0000 H2 0.0000 H2 0.0055 N00 0.0051 N00 0.0051 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050 0 0.0050	0 0.00386 0.00245 0 0.00386 0.05817 1 0.00029 0.00016 4 0.00003 0.00003 0 0.0054 0.0054 7 0.02241 0.01941 5 0.0005 0.0004 2 0.74291 0.74576 1 0.00255 0.00166 4 0.00752 0.00578	0.00903 0.0090 0.00149 0.0008 0.05922 0.0599 0.00002 0.0000 0.00023 0.0001 0.05515 0.0559 0.01658 0.0139 0.00044 0.0006 0.00104 0.0006 0.00104 0.0001 0.00104 0.0001	5 0.00047 0.00024 0.00032 0.06052 0.000032 0.06054 0.00001 0.00001 0.00001 0.00001 0.00008 0.00004 0.00064 0.005686 0.01155 0.00934 0.00004 0.00004 0.00004 0.00004 0.00036 0.00036 0.00036 0.00036 0.00036 0.00036	0.00012 0.0005 0.06072 0.06079 0.00000 0.00000 0.00001 0.00001 0.05719 0.05740 0.00746 0.00578 0.00746 0.00578 0.075433 0.75529 0.0010 0.00005 0.00101 0.00064	0.00905 0.0090 0.00002 0.0000 0.06083 0.0608 0.00000 0.0000 0.00000 0.0000 0.05754 0.0575 0.00436 0.0031 0.00003 0.0000 0.75607 0.7567 0.00002 0.0000 0.00038 0.0002 0.00038 0.0002	1 0.00000 0.00000 0.06085 0.06086 0 0.00000 0.00000 0 0.00000 0.00000 0 0.00000 0.00000 3 0.05768 0.05771 8 0.00224 0.00150 2 0.00002 0.00002 0 0.75720 0.75758 0 0.00000 0.00000 2 0.00001 0.00000 2 0.00011 0.00006

CASE= 0 0/F= P, ATM 30,000 P, PSIA 440,9 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 7,0621-3 M, MOL WT 28,974 CP, CAL/(G)(K) 0.3138 GAMMA (S) 1.2797 SON VEL,M/SEC 742.2	7,5665-3 8,1485-3 8,8276-3 28,975 28,975 28,975 0,3094 0,3049 0,3002 1,2848 1,2902 1,2961	30.000 30.000 30.000 440.9 440.9 440.9 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 9.6301-3 1.0593-2 1.1770-2 28.975 28.974 28.974 0.2954 0.2902 0.2843 1.3024 1.3094 1.3179	PHI= 0.5862 30.000 30.000 30.000 440.9 440.9 440.9 800.0 700.0 600.4 980.3 800.3 620.1 1.3241-2 1.5133-2 1.7655-2 28.974 28.974 28.974 0.2779 0.2712 0.2644 1.3276 1.3386 1.3500 552.1 518.5 482.3	8 440.9 440.9 300.0 500.0 400.0 300.0 8 440.3 260.3 80.3 9 2.1186-2 2.6483-2 3.8181-2 14 28.974 28.974 31.330 1 0.2580 0.2523 0.2967 8 1.3622 1.3733 1.2844
MOLE FRACTIONS AR C02 0.08027 H20(L) 0.00000 H20 0.07624 N0 0.00081 N02 0.00001 N2 0.75071 OH 0.0002 02 0.08296	0.07625 0.07625 0.07625 0.00048 0.00027 0.00013 0.00001 0.00001 0.00001 0.75087 0.75098 0.75105 0.00001 0.00000 0.00000	0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 0.07625 0.07625 0.07625 0.00006 0.00002 0.00001 0.0001 0.00000 0.00000 0.75109 0.75111 0.75112	0.00897 0.00897 0.0089 0.08027 0.08027 0.0802 0.00000 0.00000 0.00000 0.07625 0.07625 0.07625 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.75112 0.75112 0.75112 0.00000 0.00000 0.00000 0.00039 0.00339 0.08339	7 0.08027 0.08027 0.08027 0.00000 0.00000 0.07518 0 0.07625 0.07625 0.00107 0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000 0 0.75112 0.75112 0.75112 0 0.00000 0.00000 0.00000
P, ATM 40.000 P, PSIA 587.8 T, DEG K 2800.0 T, DEG F 4580.3	587.8 587.8 587.8 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 5.2048-3 5.4138-3 5.6369-3 28.828 28.875 28.909 0.4402 0.4142 0.3931 1.2063 1.2149 1.2233	40,000 40,000 40,000 587.8 587.8 587.8 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3 5,8765-3 6.1354-3 6.4165-3 28.933 28.948 28.959 0.3764 0.3633 0.3531 1,2312 1.2383 1.2447	PHI= 0.5862 40.000	8 587.8 587.8 587.8 0 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 3 7.8464-3 8.3081-3 8.8275-3 2 28.973 28.974 28.974 0 0.3274 0.3227 0.3182 7 1.2654 1.2701 1.2749
MOLE FRACTIONS AR C0 0.00645 C02 0.97324 H 0.00039 H02 0.00090 H2 0.07025 N0 0.02174 N02 0.0005 N2 0.73278 0 0.00230 0H 0.00230 0H 0.00230 0H 0.00229	0.00427 0.00271 0.00164 0.07560 0.07729 0.07845 0.00022 0.00012 0.00006 0.00004 0.00003 0.00002 0.00061 0.00040 0.00025 0.001902 0.01646 0.01406 0.00005 0.0005 0.0004 0.73780 0.74030 0.74236 0.00154 0.00100 0.00065 0.000679 0.00521 0.00390	0.00095 0.00052 0.00027 0.07921 0.07968 0.07996 0.00003 0.00001 0.00001 0.000015 0.00009 0.00005 0.07455 0.07508 0.07547 0.01183 0.00980 0.00796 0.00004 0.00004 0.00004 0.74410 0.74552 0.74671 0.00038 0.00022 0.00012 0.00028 0.00021 0.00137	0.00896 0.00897 0.0089 0.00013 0.00006 0.0000 0.08012 0.08020 0.0802 0.00000 0.00000 0.00000 0.00001 0.00001 0.0000 0.07575 0.07594 0.0760 0.00633 0.00491 0.0037 0.0003 0.0003 0.0000 0.74770 0.74851 0.7491 0.00006 0.0003 0.0000 0.00099 0.00057 0.0003 0.00099 0.00057 0.0003	2 0.0001 0.0000 0.00000 1 0.08026 0.08027 0.08027 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 1 0.00000 0.00000 0.00000 7 0.07615 0.07620 0.07623 0.00271 0.00190 0.00128 3 0.00003 0.00002 0.00002 3 0.74972 0.75014 0.75047 1 0.00001 0.00000 0.00000 1 0.00001 0.00000 0.00000

T, DEG K 1500.0 140. T, DEG F 2240.3 206. RHO, G/CC 1.1771-2 1.261. M, MOL WT 28.977 28. CP, CAL/I(GI(K) 0.3182 0.3 GAMMA(S) 1.2747 1.2	000 50,000 50,000 50,00 1.8 734.8 734.8 734. 0.0 1300.0 1200.0 1100. 0.3 1880.3 1700.3 1520. 2-2 1.3582-2 1.4714-2 1.6051- 977 28.977 28.977 28.97 1339 0.3094 0.3047 0.299	0 50.000 50.000 50.000 8 734.8 734.8 734.8 0 1000.0 900.0 800.0 3 1340.3 1160.3 980.3 1 1.7657-2 1.9618-2 2.2071-2 7 28.977 28.977 28.977 0.2943 0.2882 0.2816 8 1.3038 1.3122 1.3226	50.000 50.000 734.8 734.8 700.0 600.0 800.3 620.3 2.5224-2 2.9428-2 28.977 28.977 0.2746 0.2675 1.3329 1.3447	50.000 50.000 50.000 734.8 734.8 734.8 500.0 400.0 300.0 440.3 260.3 80.3 55313-2 4.6456-2 6.4946-2 28.977 30.496 31.976 0.2608 0.7308 0.2955 1.3568 1.2133 1.2735 441.2 363.8 315.2
MOLE FRACTIONS AR CO2 0.09932 0.09 H20(L) 0.09000 0.00 H20 0.09441 0.09 NO 0.00065 0.00 NO2 0.00001 0.00 N2 0.74370 0.74 OH 0.00002 0.00 02 0.05301 0.05	932 0.09932 0.09932 0.0993 000 0.00000 0.00000 0.00000 441 0.09442 0.099442 0.0944 039 0.00021 0.00011 0.0000 010 0.00001 0.00001 0.0000 0.74392 0.74397 0.7440 001 0.00000 0.00000 0.0000	2 0.09932 0.09932 0.09932 0.09000 0.00000 0.00000 2 0.09442 0.09442 0.09442 5 0.00002 0.00001 0.00000 0 0.00000 0.00000 0.00000 0 0.74402 0.74402 0.74403 0 0.00000 0.00000 0.00000	0.09932 0.09932 0.00000 0.00000 0.09442 0.00000 0.00000 0.00000 0.74403 0.74403 0.00000 0.00000	0.00888 0.00888 0.00888 0.9932 0.09932 0.09932 0.0000 0.04982 0.09379 0.90442 0.04459 0.00060 0.00000 0.00000 0.00000 0.04000 0.00000 0.00000 0.74403 0.74403 0.74403 0.00000 0.00000 0.00000 0.05335 0.05335 0.05335
T, DEG K 2800.0 270 T, DEG F 4580.3 440 RHO, G/CC 5.9443-5 6.256 M, MOL WIT 27.315 27. CP, CAL/IGI(K) 1.0985 0.9 GAMMA(S) 1.1352 1.1	0.00 0.5000 0.5000 0.500 7.3 7.3 7.3 7.3 0.0 2600.0 2500.0 2400 0.3 4220.3 4040.3 3860 0.5-5 6.5778-5 6.9094-5 7.2528- 723 28.067 28.348 28.56 117 0.8674 0.7568 0.652	0 0.5000 0.5000 0.5000 0.5000 7.3 7.3 7.3 7.3 0 2300.0 2200.0 2100.0 3 3680.3 3500.3 3220.3 5 7.6104-5 7.9863-5 8.3862-5 7 28.726 28.835 28.902 7 0.5594 0.4819 0.4213 0 1.1732 1.1908 1.2098	0.5000 0.5000 7.3 7.3 2000.0 1900.0 3140.3 25.0.3 8.8172-5 9.2878-5 28.941 28.961 0.3841 0.3593 1.2273 1.2412	0.5000 0.5000 0.5000 7.3 7.3 7.3 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 9.8072-5 1.0386-4 1.1036-4 28.971 28.976 28.978 0.3442 0.3348 0.3283 1.2513 1.2587 1.2645 804.0 783.6 761.9
MOLE FRACTIONS AR CO 0.00829 0.00 CO 0.05749 0.04 CO2 0.05375 0.06 H 0.01253 0.00 H2 0.0001 0.00 H2 0.01187 0.00 H20 0.07540 0.08 NO 0.01548 0.01 N2 0.68700 0.69 O 0.01512 0.00 OH 0.02313 0.01 O2 0.03922 0.03	704	7 0.01079 0.00664 0.00307 7 0.10619 0.11138 0.11465 5 0.00060 0.00027 0.00010 0 0.00000 0.00000 0.00000 1 0.10631 0.10859 0.11006 0 0.00553 0.00434 0.00336 7 0.72787 0.73122 0.73341 3 0.00111 0.00059 0.00033 3 0.00540 0.00366 0.0023	0.00142 0.00059 0.11644 0.11735 0.00004 0.00001 0.00000 0.00000 0.00030 0.00013 0.11102 0.11158 0.00260 0.0015 0.73479 0.73563 0.0014 0.00006 0.00150 0.00090	0.00880 0.00880 0.00880 0.00022 0.00007 0.00002 0.11776 0.11793 0.11799 0.00000 0.00000 0.00000 0.00006 0.00000 0.00000 0.11190 0.11207 0.11216 0.00142 0.00100 0.00067 0.73615 0.73648 0.73669 0.0003 0.00001 0.00000 0.00051 0.00027 0.00013 0.002316 0.02335 0.02352

P, ATM 1.0000 P, PS1A 14.7 T, DEG K 1500.0 T, DEG F 2240.3	14,6540 F/A= 0.06824 1,0000 1.0000 1.0000 14,7 14,7 14,7 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 2,5227-4 2,7168-4 2.9432-4 28,980 28,981 28,981 0.3221 0.3172 0.3123 1,2706 1.2759 1.2814 714,4 689.8 664.2	1.0000 1.0000 1.0000 14.7 14.7 14.7 1100.0 1000.0 900.0 1520.3 1340.3 1160.3	14.7 14.7 14.7 800.0 700.0 600 980.3 800.3 620 4.4148-4 5.0455-4 5.9864 28.981 28.981 28.9 0.2800 0.2806 0.27 1.3124 1.3234 1.33	.7 14.7 14.7 14.7 .0 500.0 400.0 300.0 .3 440.3 260.3 80.3 -4 7.0637-4 8.8296-4 1.3013-3 81 28.981 28.981 32.035 31 0.2658 0.2590 0.9771 53 1.3477 1.3600 1.1538
MOLE FRACTIONS AR 0.00873 C0 0,00009 C02 0,13306 H2 0,00003 H20 0,12663 N0 0,00002 N2 0,73137 OH 0,00005	0.00873 0.00873 0.00073 0.00003 0.00001 0.00000 0.13313 0.13315 0.13316 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.12666 0.12667 0.12668 0.00001 0.00000 0.00000 0.73141 0.73142 0.73143 0.00000 0.00000 0.00000 0.00002 0.00001 0.00000	0.00000 0.00000 0.00000 0.13316 0.13316 0.13316 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.12668 0.12668 0.12668 0.00000 0.00000 0.00000 0.73143 0.73143 0.73143 0.00000 0.00000 0.00000	0.00000 0.00000 0.000 0.13316 0.13316 0.133 0.00000 0.00000 0.000 0.00000 0.00000 0.000 0.12668 0.12668 0.126 0.00000 0.00000 0.000 0.73143 0.73143 0.7314 0.00000 0.00000 0.000	00 0.00000 0.00000 0.00000 0.13316 0.13316 0.13316 00 0.00000 0.00000 0.00000 00 0.00000 0.00000 0.09532 68 0.12668 0.12668 0.03136 00 0.00000 0.00000 0.00000 43 0.73143 0.73143 0.73143 00 0.00000 0.00000 0.00000
CASE= 0 0/F= P, ATM 1.5000 P, PSIA 22.0 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.8027-4 M, MOL WT 27.613 CP, CAL/IGIKI 0.9229 GAMMA ISI 1.1427 SON VEL, M/SEC 981.6	14.6540 F/A= 0.06824 1.5000 1.5000 1.5000 22.0 22.0 22.0 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 1.8905-4 1.9816-4 2.0767-4 27.922 28.185 28.401 0.8355 0.7507 0.6703 1.1460 1.1510 1.1581 959.9 939.6 920.7	1.5000 1.5000 1.5000 22.0 22.0 22.0 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3	22.0 22.0 22 2100.0 2000.0 1930 3320.3 3140.3 2960 2.5130-4 2.6428-4 2.7847 28.869 28.915 28.5	.0 22.0 22.0 22.0 .0 1890.0 1700.0 1600.0 .3 2780.3 2600.3 2420.3 -4 2.9412-4 3.1153-4 3.3106-4 44 28.962 28.972 28.977 39 0.3557 0.3430 0.3340 26 1.2435 1.2524 1.2596
MOLE FRACTIONS AR O.00832 C0 0.05697 C02 0.06590 H 0.00713 H02 0.00001 H2 0.01152 H20 0.09697 N0 0.01177 N2 0.69101 O 0.00661 OH 0.01727 O2 0.02251	0.00841 0.00849 0.00856 0.04680 0.03656 0.02800 0.08149 0.09254 0.10249 0.00043 0.00259 0.00116 0.00001 0.00000 0.00000 0.00903 0.00689 0.00512 0.10420 0.11012 0.11482 0.00942 0.00729 0.00545 0.70000 0.70769 0.71406 0.00404 0.00234 0.00128 0.01325 0.00978 0.00648 0.01325 0.00978 0.00188	0.00371 0.00261 0.00177 0.11843 0.12112 0.12307 0.00392 0.00271 0.00180 0.71915 0.72308 0.72598 0.00066 0.00032 0.00014 0.00472 0.00307 0.00191	0.00583 0.00345 0.001 0.12682 0.12940 0.13 0.00009 0.00004 0.000 0.000117 0.00073 0.000 0.12442 0.12532 0.125 0.00113 0.00068 0.000 0.72803 0.72942 0.730 0.00112 0.00062 0.000 0.00112 0.00062 0.000	92 0.00100 0.00048 0.00021 07 0.13207 0.13264 0.13293 01 0.00000 0.00000 0.00000 00 0.00000 0.00000 0.00000 44 0.00025 0.00013 0.00007 91 0.12626 0.12647 0.12658 39 0.00020 0.00010 0.0005 30 0.73084 0.73114 0.73130 01 0.00000 0.00000 0.00000 02 0.00016 0.00007 0.00000

ADD H20(L) ADD C(S)

P, PSIA 29.4 T, DEG K 1500.0 1 T, DEG F 2240.3 2 RHO, G/CC 4.6855-4 5.0 M, MOL NT 28.836 2 CP, CAL/(G)(K) 0.3262 0 GAMMA (S) 1.2679 1	.2857 F /A= 0.07000 2.0000 2.0000 2.0000 29.4 29.4 29.4 400.0 1300.0 1200.0 2060.3 1880.3 1700.3 2022-4 5.4064-4 5.8569-4 28.836 28.836 28.836 3.3226 0.3188 0.3146 1.2716 1.2758 1.2804 716.5 691.5 665.6	29.4 29.4 1100.0 1000.0 1520.3 1340.3 1 6.3893-4 7.0283-4 7.8 28.836 28.836 2 0.3101 0.3052 0 1.2857 1.2917 1	.0000 2.0000 2.0000 29.4 29.4 29.4 900.0 800.0 700.0 160.3 980.3 800.3	2.0000 2.0000 2.0000 2.0000 29.4 29.4 29.4 29.4 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 1.1744-3 1.4121-3 1.7659-3 2.6586-3 28.911 28.968 28.981 32.724 0.2978 0.2733 0.2601 0.6270 1.3128 1.3391 1.3585 1.1751 475.9 438.4 394.8 299.3
C(S) 0.00000 0 CH4 0.00000 0 C0 0.00727 0. C02 0.12840 0. H2 0.00278 0. H20(L) 0.00000 0. H20 0.12630 0. NH3 0.00000 0.	0.00867 0.00867 0.00867 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.052 0.00647 0.00590 1.2876 0.12921 0.12978 0.00313 0.00359 0.00415 0.0000 0.00000 0.00000 1.2595 0.12550 0.12493 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.72657 0.72657 0.72657	0.00000 0.60000 0 0.00000 0.00000 0 0.00517 0.00427 0 0.13050 0.13140 0 0.00408 0.00578 0 0.00000 0.00000 0 0.12420 0.12330 0 0.00000 0.00000 0	00867 0.00867 0.00868 00000 0.00000 0.00000 000000 0.00000 0.00003 00321 0.00207 0.00103 13247 0.13360 0.13459 00684 0.00797 0.00866 00000 0.00000 0.00000 12224 0.12111 0.12025 00000 0.00000 0.00001 72657 0.72657 0.72670	0.00870 0.00871 0.00872 0.00867 0.00000 0.00000 0.00000 0.00500 0.00129 0.00228 0.00250 0.00001 0.00018 0.00001 0.00000 0.00001 0.13456 0.13401 0.13385 0.13067 0.00071 0.00093 0.00007 0.00000 0.100000 0.00000 0.00000 0.11378 0.12210 0.12415 0.12464 0.01527 0.00002 0.00002 0.00001 0.00000 0.72844 0.72989 0.73021 0.72659
P, PSIA 44.1 T, DEG k 2800.0 2 T, DEG F 4580.3 4 RHO, G/CC 3.6316-4 3.8 M, MOL WT 27.813 2 CP, CAL/(G)(K) 0.8239 0 GAMMA (S) 1.1489 1	3.0000 3.0000 3.0000 44.1 44.1 44.1 2700.0 2600.0 2500.0 1400.3 4220.3 4040.3	44.1 44.1 2400.0 2300.0 2 3860.3 3680.3 3 4.3556-4 4.5611-4 4.7 28.593 28.694 2 0.5444 0.4869 0 1.1775 1.1904 1	2.0000 3.0000 44.1 44.1 200.0 2100.0 500.3 3320.3 3.0000 44.1 44.1 3.0000 44.1 <t< td=""><td>3.0000 3.0000 3.0000 3.0000 14.1 44.1 44.1 44.1 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 5.5480-4 5.8567-4 6.2014-4 6.5890-4 28.832 28.835 28.836 28.836 0.3443 0.3371 0.3329 0.3295 1.2518 1.2575 1.2612 1.2645 828.2 807.9 786.3 763.8</td></t<>	3.0000 3.0000 3.0000 3.0000 14.1 44.1 44.1 44.1 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 5.5480-4 5.8567-4 6.2014-4 6.5890-4 28.832 28.835 28.836 28.836 0.3443 0.3371 0.3329 0.3295 1.2518 1.2575 1.2612 1.2645 828.2 807.9 786.3 763.8
CO 0.65228 0 CO2 0.07859 0 H 0.00474 0 HO2 0.00001 0 H2 0.1018 0 H20 0.10492 0 N0 0.1023 0 N2 0.69568 0 OH 0.01406 0	.00844 0.00851 0.00856 .04292 0.03422 0.02658 .08914 0.09885 0.10732 .00293 0.00174 0.00100 .00001 0.00000 0.00000 .00805 0.00627 0.00483 .11085 0.11565 0.11942 .00796 0.00596 0.00425 .70324 0.70964 0.71488 .00241 0.00135 0.00071 .01056 0.00762 0.00526 .01349 0.01019 0.00720	0.02024 0.01533 0 0.11429 0.11968 0 0.00056 0.00030 0 0.00000 0.00000 0 0.00370 0.00287 0 0.12229 0.12436 0 0.00286 0.00179 0 0.71901 0.72209 0 0.00034 0.00015 0 0.00034 0.00015 0	00865 0.00866 0.00867 01186 0.00973 0.00869 12348 0.12580 0.12694 00016 0.00008 0.00004 00000 0.00000 0.00000 00231 0.00200 0.00191 12577 0.12660 0.12696 00100 0.00048 0.00019 72424 0.72555 0.72620 00006 0.00002 0.00000 00121 0.0062 0.00002	0.00867 0.00867 0.00867 0.00867 0.00824 0.00800 0.00779 0.00756 0.12742 0.12768 0.12789 0.12812 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00196 0.00209 0.00227 0.00250 0.12704 0.12656 0.12680 0.12658 0.00006 0.00002 0.00000 0.00000 0.72645 0.72653 0.72656 0.72657 0.00001 0.00000 0.00000 0.00000 0.0001 0.00000 0.00000 0.00000 0.0001 0.00000 0.00000 0.00000

ADD CIST ADD H201L1

CASE= 0 0/F= P, ATM 4.0000 P, PSIA 58.8 T, DEG F 1500.0 T, DEG F 2240.3 RHO, G/CC 9.1143-4 M, MOL WT 28.046 CP, CAL//IGIIKI 0.3338 GAMMA (S) 1.2695 SON YEL, M/SEC 751.4	58.8 58.8 1400.0 1300.0 2600.3 1880.3 9.7653-4 1.0516-3 1. 28.046 28.046 0.3313 0.3289	4,0000 4,0000 4,1 58.8 58.8 1 1200.0 1100.0 10 1700.3 1520.3 13 1393-3 1,2429-3 1,36 28.046 28.046 28 0.3266 0.3245 0. 1,2771 1,2794 1.	7,4074 PHI= 1,172 0000 4,0000 4,0000 58.8 58.8 58.8 00.0 900.0 800.0 40.3 1160.3 980.3 72-3 1,5197-3 1,7216-3 .047 28,058 28,254 3231 0,3342 0,4471 2812 1,2763 1,2322 16.3 583.4 538.6	4,0000 4,0000 58.8 58.8 700.0 600.0 800.3 620.3 1,9955-3 2,3478-3 28.669 28.898 0,3921 0,3172 1,2538 1,2943 504.5 472.7	4.0000 4.0000 4.0000 58.8 58.8 58.8 500.0 400.0 300.0 440.3 260.3 80.3 2.8244-3 2.5321-3 5.4727-3 28.970 28.983 33.680 0.2815 0.2678 0.4639 1.3263 1.3446 1.1915 436.3 392.8 297.1
MOLE FRACTIONS AR 0.00036 C(5) 0.00000 CH4 0.00000 C0 0.04458 C02 0.10480 H2 0.02015 H20(L) 0.00000 N3 0.00000 N2 0.70012	0.00000 0.00000 0 0.00000 0.00000 0 0.04259 0.04013 0 0.10679 0.10925 0 0.02214 0.02460 C 0.00000 0.00000 0 0.12001 0.11755 0 0.00000 0.00000 0	.00000 0.00000 0.0 .00000 0.00000 0.0 .03708 0.03328 0.0 .11230 0.11610 0.1 .02765 0.03144 0.0 .00000 0.00000 0.0 .11450 0.11070 0.1 .00000 0.00001 0.0	0836 0.00836 0.00842 0000 0.00000 0.00000 0001 0.00020 0.00368 2856 0.02257 0.10235 2081 0.12667 0.13446 3512 0.04133 0.03802 0000 0.00000 0.0000 0500 0.10043 0.09771 0001 0.0003 0.0008 0013 0.70040 0.70529	0.00854 0.00858 0.00000 0.00409 0.01108 0.01305 0.00269 0.00024 0.13893 0.13590 0.01904 0.00571 0.00000 0.00000 0.10399 0.11397 0.00008 0.0006 0.71554 0.71840	0.00852 0.00844 0.00836 0.01297 0.02234 0.03236 0.00976 0.00516 0.00000 0.00001 0.00000 0.00000 0.12956 0.12342 0.11702 0.00005 0.00006 0.00000 0.00000 0.00000 0.13493 0.12441 0.13322 0.00722 0.00003 0.00001 0.00000 0.71379 0.70735 0.70012
CASE= 0 0/F= P, ATM 6.0000 P, PSIA 88.2 T, DEG K 2800.0 T, DEG F 4580.3 RHG, G/CC 7.2074-4 M, MOL NT 27.599 CP, (AL//(G)/(K) 0.6883 GAMMA (S) 1.1634 SON VEL,M/SEC 990.6	88.2 88.2 2700.0 2600.0 4400.3 4220.3 7.5189-4 7.8410-4 8.27.764 27.881 0.6018 0.5198	6.0000 6.0000 6.0 88.2 88.2 2500.0 2400.0 230 4040.3 3860.3 361 1766-4 8.5305-4 8.90 27.956 27.999 28 0.4062 0.4062 0.1 1.2072 1.2245 1.	0000 6.0000 6.0000 88.2 88.2 88.2 00.0 2200.0 2100.0 80.3 3500.3 3320.3	83 6.0000 6.0000 88.2 38.2 2000.0 1900.0 3140.3 2960.3 1.0253-3 1.0793-3 28.043 28.045 0.3477 0.3440 1.2568 1.2598 863.3 842.4	6.0000 6.0000 6.0000 88.2 88.2 88.2 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 1.1393-3 1.2063-3 1.2817-3 28.045 28.046 28.046 0.3412 0.3386 0.3362 1.2623 1.2647 1.2670 820.7 798.4 775.2
MOLE FRACTIONS AR CO 0.06831 CO2 0.07869 H 0.00406 H2 0.01497 H20 0.11826 NO 0.00550 N2 0.68622 O 0.00155 OH 0.00924 O2 0.00496	0.06260 0.05832 0 0.08528 0.09018 0 0.00269 0.00176 0 0.01358 0.01272 0 0.12262 0.12566 0 0.00366 0.00223 0 0.69125 0.69489 0 0.00079 0.00036 0 0.00636 0.00411 0	.05547 0.05373 0.0 .09313 0.09540 0.0 .00113 0.00072 0.0 .01236 0.01238 0.0 .12753 0.12848 0.1 .00124 0.00063 0.0 .69726 0.69864 0.6 .00015 0.00005 0.0 .00248 0.00140 0.0	0835 0.00836 0.00836 5264 0.05185 0.05115 9661 0.09747 0.09820 0044 0.00026 0.00015 1264 0.01308 0.01364 2880 0.12870 0.12833 0029 0.00013 0.00005 9339 0.65977 0.65996 0002 0.00001 0.00000 00074 0.00037 0.00017 0007 0.00002 0.00001	0.00836 0.00836 0.05043 0.04962 0.09893 0.00975 0.00008 0.00004 0.01431 0.01511 0.12775 0.12700 0.00002 0.00001 0.70005 0.70009 0.00000 0.00000 0.00007 0.00003 0.00000 0.00000	0.00836 0.00836 0.00836 0.04868 0.04756 0.04621 0.10070 0.10182 0.10317 0.00002 0.00001 0.00000 0.01605 0.01717 0.01852 0.12608 0.12497 0.12363 0.00000 0.00000 0.00000 0.70010 0.70011 0.70011 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

ADD C(S) ADD H20(L)

P, PSIA 147.0 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 2.2189-3 2.2 M, MOL NT 27.311 2 CP, CAL/IGI(K) 0.3403 (10.000 10.000 10.000 147.0 147.0 147.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	10.000 10.000 10.000 147.0 147.0 147.0 1100.0 1000.0 900.0 1520.3 1340.3 1160.3	PHI= 1.3189 10.000 10.000 147.0 147.0 800.0 700.0 980.3 800.3 4.3151-3 5.0060-3 5 28.327 28.754 0.5364 0.3768 1.2059 1.2572 532.1 504.4	10,000 10,000 10,000 10,000 10,000 147,0 147,0 147,0 147,0 300,0 620,3 440,3 260,3 80,3 8750-3 7,0625-3 8,8309-3 1,4032-2 8,925 28,976 28,985 34,542 0,3098 0,2828 0,2712 0,3749 1,2977 1,3230 1,3386 1,2039 473,1 435,7 391,9 294,8
C1S1 0.00000 0 CH4 0.00000 0 C0 0.07610 0 C02 0.08601 0 H2 0.03946 0 H201L1 0.00000 0 H20 0.11484 0 NH3 0.00000 0	0.00806 0.00806 0.00866 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.07308 0.06941 0.06491 0.08903 0.09270 0.09721 0.0000 0.00000 0.00000 0.11182 0.10815 0.10365 0.00010 0.00010 0.00000 0.67552 0.67552 0.67553	0.00807 0.00807 0.00816 0.00000 0.00000 0.00000 0.00004 0.00052 0.00606 0.05930 0.05165 0.03521 0.10279 0.11012 0.12283 0.05608 0.06185 0.05732 0.00000 0.00000 0.00000 0.09811 0.09147 0.08654 0.00004 0.00007 0.00014 0.67558 0.57624 0.68374	0.00488 0.01636 0.01599 0.01774 0.01154 0.00178 0.13492 0.13201 0.03380 0.01401 0.00000 0.00000 0.09325 0.11010 0.00016 0.00013	0.00833 0.00826 0.00817 0.00806 0.02474 0.03456 0.04540 0.05778 0.01630 0.01213 0.00656 0.00000 0.00014 0.00000 0.00000 0.00000 0.12603 0.11936 0.11229 0.10433 0.00399 0.00066 0.00004 0.00000 0.00000 0.00000 0.00000 0.15156 0.12262 0.13306 0.14315 0.00274 0.00009 0.00005 0.00002 0.00000 0.69756 0.69192 0.68438 0.67552
P, PSIA 220.4 T, DEG k 2800.0 2 T, DEG F 4580.3 4 RHO, G/CC 1.7719-3 1.8 M, MOL WT 27, '41 2 CP, CAL/IG)(KI 0.5061 0 GAMMA (S) 1.1992	15.000	15.000 15.000 15.000 220.4 220.4 220.4 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3	PHI = 1.3189 15.000 15.000 220.4 220.4 2100.0 2000.0 320.3 3140.3 2.3771-3 2.4961-3 2 27.308 27.310 0.3545 0.3512 1.2593 1.2618 897.3 876.5	15.000 15.000 15.000 15.000 230.4 220.4 220.4 220.4 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 1,6276-3 2,7736-3 2,9367-3 3,1203-3 27,310 27,311 27,311 27,311 0.3486 0.3464 0.3443 0.3423 1,2640 1.2661 1,2680 1,2700 855.1 832.9 810.1 786.5
CO 0.09414 0.002 0.06696 0.002 0.0035 0.002541 0.00335 0.002541 0.002541 0.002541 0.00254 0.00252 0.0025 0.0025 0.00038 0.00046 0.000470 0.004	0.00803 0.00805 0.00805 0.09230 0.09099 0.08998 0.06919 0.07075 0.07132 0.02530 0.02552 0.02596 0.12574 0.12672 0.12708 0.0126 0.00070 0.00037 0.67231 0.67363 0.67444 0.00007 0.00007 0.00003 0.00302 0.00185 0.00108 0.00035 0.00015 0.00008	0.00806 0.00806 0.00806 0.08911 0.08827 0.08739 0.07288 0.07377 0.07469 0.00647 0.00041 0.00024 0.02656 0.02729 0.02815 0.12699 0.12658 0.12592 0.00018 0.00008 0.00004 0.67493 0.67520 0.67536 0.00001 0.00000 0.00000 0.0060 0.00031 0.00015 0.00002 0.00001 0.00000	0.08641 0.08529 0.07561 0.07681 0.00014 0.00007 0.02913 0.03025 0.12505 0.12399 0.00001 0.00000 0.67544 0.67548 0.00000 0.00000 0.00000 0.00000	0.00806 0.00806 0.00806 0.00806 0.08400 0.08249 0.08071 0.07861 0.07811 0.07962 0.08140 0.08350 0.00004 0.00002 0.00001 0.00000 0.03156 0.03307 0.03485 0.03695 0.12271 0.12122 0.11944 0.11735 0.00000 0.00000 0.00000 0.00000 0.67551 0.67552 0.67552 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

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CASE= 0 0/F= P, ATM 20.000 P, PSIA 293.9 T, DEG K 1500.0 T, DEG F 2240.3 RHO, GCC 4.3266-3 M, MOL NT 26.627 CP, CAL/(G)(K) 0.3459 GAMMA (S) 1.2752 SON VEL, M/SEC 772.8	293.9 293.9 1400.0 1300.0 12 2060.3 1880.3 11 4.6356-3 4.9924-3 5.40 26.627 26.628 20 0.3445 0.3437 0 1.2767 1.2777 1	00 PERCENT FUEL= 9 0.000 20.000 20.000 193.9 293.9 293.6 100.0 1100.0 1000.6 100.3 1520.3 1340.5 100.3 1520.3 1340.5 1.631 26.661 26.927 3.457 0.3750 0.5704 1.2773 1.2647 1.2111 191.8 658.7 611.5	293,9 293,9 293,9 900,0 800,0 700,0 1160,3 980,3 800,3 7,5165-3 8,6743-3 1,0031-2 27,755 28,471 28,808 0,7347 0,4827 0,3604 1,1772 1,2183 1,2636	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 1.757-2 1.4127-2 1.8829-2 2.8683-2 28.941 28.981 30.901 35.304 0.3075 0.2851 1.7859 0.3511 1.2975 1.3188 1.728 1.2027 472.9 434.9 355.3 291.5
MOLE FRACTIONS AR 0.00079 C1S1 0.00000 CH4 0.00000 C0 0.10213 C02 0.07086 H2 0.05980 H20 0.10580 NH3 0.00002 N2 0.65260	0.00000 0.000000	00779 0.00780 0.00788 00000 0.00000 0.00000 00006 0.00060 0.00558 00896 0.08267 0.06698 009267 0.09095 0.10348 077268 0.07795 0.07538 00000 0.00000 0.00000 09276 0.08653 0.08077 00006 0.00011 0.00026 0.5269 0.65339 0.65987	0.00708 0.02551 0.03520 0.01738 0.02089 0.02184 0.03271 0.00783 0.00120 0.12291 0.12706 0.12338 0.05190 0.02703 0.01088 0.00500 0.00000 0.00000 0.08440 0.10343 0.11806 0.00004 0.00023 0.00018	0.00810 0.00802 0.00785 0.00779 0.04302 0.05423 0.07440 0.08148 0.01960 0.01467 0.00384 0.00000 0.00010 0.00000 0.00000 0.00000 0.11732 0.11020 0.09708 0.09251 0.00307 0.00051 0.00002 0.00000 0.00000 0.00000 0.05729 0.16432 0.12970 0.14055 0.10188 0.00131 0.00012 0.00000 0.00000 0.00000 0.67819 0.67175 0.65762 0.65260
CASE= 0 0/F= P, ATM 30.000 P, PSIA 440.9 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 3.4646-3 M, MOL WT 26.534 CP, CAL//IG)/K1 0.4384 GAMMA (5) 1.2251 SON VEL,M/SEC 1036.8	440.9 440.9 2700.0 2600.0 29 4400.3 4220.3 44 3.5974-3 3.7389-3 3.8 26.567 26.589 21 0.4125 0.3941 0 1.2350 1.2431 1	0,000 30,000 30,000 140,9 440,9 440,5 500,0 2400,0 2300,0 140,3 3860,3 3680,5	440,9 440,9 440,9 440,9 2200,0 2100,0 2000,0 3500,3 3320,3 3140,3 4,4241-3 4,6352-3 4,8671-3 26,622 26,624 26,625 0,3564 0,3580 0,3554 1,2616 1,2641 1,2662	30.000 30.000 30.000 30.000 410.9 440.9 440.9 440.9 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 5.1234-3 5.4081-3 5.7263-3 6.0842-3 26.626 26.626 26.627 26.627 0.3512 0.3512 0.3516 0.3493 0.3476 1.2681 1.2699 1.2717 1.2735 867.4 844.9 821.6 797.6
MOLE FRACTIONS AR 0.00776 C0 0.12182 C02 0.05156 H 0.00303 H2 0.04158 H20 0.12069 NH3 0.00000 NO 0.00088 N2 0.64990 0 0.00011 OH 0.00253 02 0.00013	0.12095 0.12016 0. 0.05265 0.05358 0. 0.00211 0.00144 0. 0.04206 0.04268 0. 0.12134 0.12151 0. 0.00000 0.00000 0. 0.00051 0.000028 0. 0.65090 0.65155 0. 0.00055 0.00002 0. 0.00160 0.00007 0.	00778 0.00779 0.00779 11937 0.11854 0.11762 15416 0.05536 0.05631 104342 0.04426 0.04521 12131 0.12082 0.12016 100000 0.00000 0.00000 10015 0.00007 0.00001 10015 0.00007 0.00001 10016 0.00001 0.00001 100056 0.00031 0.00001 100001 0.00000 0.00000	0.11659 0.11542 0.11407 0.05736 0.05855 0.05991 0.0002 0.00012 0.00007 0.04628 0.04788 0.11805 0.11805 0.11672 0.00000 0.000001 0.000001 0.000001 0.65249 0.65254 0.65257 0.00000 0.00000 0.000001 0.000000 0.000000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00779 0.00779 0.00779 0.00779 0.11251 0.11070 0.10858 0.10609 0.06147 0.06328 0.06540 0.06790 0.05042 0.05224 0.05435 0.05684 0.11518 0.11337 0.11126 0.10878 0.00001 0.00001 0.00001 0.00002 0.00000 0.00000 0.00000 0.00000 0.65259 0.65259 0.65260 0.65260 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000

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CASE =
                   O/F=
                         0.0000
                                   F/A = 0.00000
                                                    PERCENT FUEL= 0.0000
                                                                              PHI= 0.0000
                                                               3.0000
                                                                        3,0000
P. ATM
                                            3,0000
                                                      3.0000
                                                                                          3.0000
                                                                                                   3.0000
                                                                                                             3.0000
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P. PSIA
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                                              44.1
                                                       44.1
                                                                                                    1900.0
T, DEG K
                 2800.0
                          2700.0
                                   2600.0
                                            2500.0
                                                               2300.0
                                                                        2200.0
                                                                                 2100.0
                                                                                                             1800.0
                                                                                                                      1700.0
                                                                                                                               1600.0
                                                      2400.0
                                                                                           2000.0
                 4580.3
                          4400.3
                                                                        3500.3
                                                                                 3320.3
                                                                                          3140.3
                                                                                                   2960.3
                                                                                                             2780.3
                                                                                                                      2600.3
                                                                                                                               2420.3
T. DEG F
                                   4220.3
                                            4040.3
                                                      3860.3
                                                               3680.3
RHO, G/CC
               3.7566-4 3.9043-4 4.0609-4 4.2280-4 4.4074-4 4.6012-4 4.8117-4 5.0417-4 5.2943-4 5.5732-4 5.8829-4 6.2291-4 6.6184-4
                                                                                                                               28.964
M. MOL WT
                 28.771
                          28.834
                                   28.880
                                            28,911
                                                      28,933
                                                               28.946
                                                                        28.955
                                                                                 28,959
                                                                                           28,962
                                                                                                    28.964
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                                                                                                                      28.964
                                            0.3715
                                                               0.3425
                                                                                                                      0.3027
                                                                                                                               0.2982
CP. CAL/(G)(K)
                 0.4495
                          0.4179
                                   0.3921
                                                      0.3552
                                                                        0.3325
                                                                                 0.3245
                                                                                          0.3179
                                                                                                   0.3123
                                                                                                             0.3073
                                                               1.2556
                                                                                                                               1.2988
GAMMA (S)
                 1.2095
                          1,2191
                                   1.2289
                                            1.2384
                                                      1,2473
                                                                        1.2630
                                                                                 1.2698
                                                                                           1.2760
                                                                                                    1.2819
                                                                                                             1,2876
                                                                                                                      1.2932
SON VEL.M/SEC
                  989.3
                           974.2
                                    959.1
                                             943.6
                                                       927.5
                                                                910.8
                                                                         893.3
                                                                                  875.0
                                                                                           855.9
                                                                                                    836.2
                                                                                                              815.7
                                                                                                                       794.4
                                                                                                                                772.3
MOLE FRACTIONS
                0.00926
                                  0.00930
                                           0.00931
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AR
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CO
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N02
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N2
                0.75804
                         0.76187
                                  0.76515
                                           0.76796
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                                                              0.77239
                0.01336
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P, ATM
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P, PSIA
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T, DEG K
                 1500.0
                          1400.0
                                   1300.0
                                            1200.0
                                                      1100.0
                                                               1000.0
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                                                                                  800.0
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                 2240.3
                                                               1340.3
                                                                                  980.3
                                                                                           800.3
                                                                                                              440.3
T, DEG F
                          2060.3
                                   1880,3
                                            1700.3
                                                      1520,3
                                                                        1160.3
                                                                                                    620.3
                                                                                                                       260.3
                                                                                                                                 80.3
               7,0596-4 7,5639-4 8,1457-4 8,8245-4 9,6267-4 1,0589-3 1,1766-3 1,3237-3 1,5128-3 1,7649-3 2,1179-3 2,6474-3 3,5298-3
RHO, G/CC
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M. MOL WT
                 28.964
                          28,964
                                   28.964
                                            28,964
                                                      28.964
CP, CAL/IGITED
                 0.2940
                          0,2898
                                   0.2856
                                            0.2815
                                                      0,2773
                                                               0.2730
                                                                        0.2681
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                                                                                                                      0.2422
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                                                                                                    1.3757
                                                                                                                      1.3952
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GAMMA (S)
                 1.3044
                          1,3102
                                   1.3161
                                            1,3223
                                                      1.3287
                                                               1.3357
                                                                        1.3440
                                                                                 1.3536
                                                                                           1.3644
                                                                                                             1.3865
                  749.4
                                                                         589.3
                                                                                  557.5
                                                                                                                       400.3
                                                                                                                                 347.2
SON VEL.M/SEC
                           725.6
                                    700.8
                                              674.9
                                                       647.7
                                                                619,2
                                                                                           523.6
                                                                                                     486.8
                                                                                                              446.1
MOLE FRACTIONS
AR:
                0.00932
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                        0.78050 0.78067 0.78078
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                                                             0.78087
N2
0ž
                0.20882 0.20909
                                  0.20926
                                           0.20937
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                                                              0.20947
                                                                       0.20948 0.20948 0.20949 0.20949 0.20949
                                                                                                                     0.20949 0.20949
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P, ATM 4. P, PSIA T, DEG F 15 T, DEG F 25 RHO, G/CC 9.41 M, MOL WT 26 CP, CAL/(G)(K) 0. GAMMA (S) 1.	0/F=10C.0000 .0000 4.0000 58.8 58.8 500.0 1400.0 240.3 2060.3 36-4 1.0086-3 3.967 28.967 2993 0.2949 2974 1.3031 747.4 723.6	F/A= 0.01000 4.0000 4.0000 58.8 58.8 1300.0 1200.0 1880.3 1.700.3 1.0862-3 1.1767-3 28.967 28.967 0.2906 0.2863 1.3090 1.3151 698.9 673.0	PERCENT F 4.0000 58.8 1100.0 1520.3 1.2837-3 28.967 0.2820 1.3215 645.9	4.0000 58.8 1000.0 1340.3	4.0000 58.8 900.0 1160.3	HI= 0.146 4.0000 58.8 800.0 980.3 1.7651-3 28.967 0.2666 1.3466 556.1	4.0000 58.8 700.0 800.3	4.0000 58.8 600.0 620.3 2.3534-3 28.967 0.2546 1.3688 485.5	4.0000 58.8 500.0 440.3 2.8241-3 28.967 0.2492 1.3799 445.0	4.0000 58.8 400.0 260.3 3.5301-3 28.967 0.2448 1.3893 399.4	4.0000 58.8 300.0 80.3 4.7594-3 29.291 0.4300 1.2521 3.26.5
CO2 0.0 H2D1L1 0.0 H2O 0.0 NO 0.0 NO 0.0 NO2 0.0 N2 0.7 OH 0.0	00923 0.00923 02088 0.02088 00000 0.00000 01961 0.01962 00120 0.00072 00001 0.00001 077262 0.77287 00002 0.00001 17641 0.17666	0.00923 0.00923 0.02088 0.02068 0.00000 0.00000 0.01962 0.01962 0.00039 0.00020 0.09001 0.00001 0.77303 C.77313 0.00000 0.00000 0.17663 0.17693	0.00923 0.02088 0.00000 0.01962 0.00009 0.00000 0.77319 0.00000 0.17699	0.00923 0.02088 0.00000 0.01962 0.00003 0.00000 0.77321 0.00000 0.17701	0.00923 0.02088 0.00000 0.01962 0.00001 0.00000 0.77322 0.00000 0.17703	0.00923 0.02088 0.00000 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.00000 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.00000 0.01962 0.00000 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.00000 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.00000 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01105 0.00857 0.00000 0.00000 0.77323 0.00000 0.17703
P, ATM 6. P, PSIA T, DEG K 28 T, DEG F 45 RHO, G/CC 7.55 M, MOL WT 28 CP, CAL/(G)(K) 0. GARWA (S) 1.	0/F=100.0000 .0000 6.0000 88.2 88.2 300.0 2700.0 .000.0 4400.3 .000.0 2700.0 .000.0 2700.0	F/A= 0.01000 6.0000 6.0000 88.2 88.2 2600.0 2500.0 4220.3 4040.3 8.1144-4 8.4503-4 28.853 28.892 0.4112 0.3881 1,2193 1,2287 955.8 940.2	PERCENT F 6.0000 88.2 2400.0 3860.3 8.8106-4 28.919 0.3696 1.2378 924.2	6.0000 88.2 2300.0 3680.3	6.0000 88.2 2200.0 3500.3	HI= 0.146 6.0000 88.2 2100.0 320.3 1.0082-3 28.956 0.3337 1.2615 872.2	5 6.0000 88.2 2000.0 3140.3 1.0588-3 28.961 0.3259 1.2682 853.3	6,0000 88.2 1900.0 29.50.3 1.1147-3 28.964 0.3194 1.2744 833.7	6.0000 88.2 1800.0 2780.3 1.1766-3 28.965 0.3137 1.2804 813.4	6.0000 88.2 1700.0 2600.3 1.2459-3 28.966 0.3086 1.2861 792.2	6.0000 88.2 1600.0 2420.3 1.3238-3 28.967 0.3038 1.2918 770.2
C0	00915 0.00918 00279 0.00188 01792 0.01889 00061 0.00036 00002 0.00002 00034 0.00024 01493 0.01597 03217 0.02827 00004 0.00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064 00064	0.00919 0.00921 0.00120 0.00074 0.01960 0.02009 0.00020 0.00010 0.00002 0.00011 0.00016 0.00011 0.01684 0.01756 0.02451 0.02096 0.00004 0.00004 0.75792 0.76073 0.00380 0.00238 0.00488 0.00370 0.16165 0.16438	0.00922 0.00043 0.02042 0.00005 0.00001 0.00066 0.01813 0.01764 0.00003 0.76310 0.00144 0.00273 0.16674	0.00922 0.00024 0.00002 0.00001 0.00004 0.01858 0.01459 0.00003 0.76511 0.00083 0.00195 0.16876	0.00923 0.00012 0.02075 0.00001 0.00002 0.01891 0.01184 0.00003 0.76681 0.00045 0.00134 0.17048	0.00923 0.00006 0.02082 0.00000 0.00000 0.00001 0.01916 0.00941 0.00003 0.76823 0.00088 0.17193	0.00923 0.00003 0.00003 0.00000 0.00001 0.01933 0.00729 0.00003 0.76942 0.00011 0.00056 0.17314	0.00923 0.00001 0.02087 0.00000 0.00000 0.00000 0.01945 0.00550 0.00002 0.77039 0.00005 0.000034 0.17414	0.00923 0.00000 0.02088 0.00000 0.00000 0.00000 0.01953 0.00401 0.00002 0.77118 0.00002 0.00019 0.17494	0.00923 0.00000 0.02088 0.00000 0.00000 0.00000 0.01957 0.00281 0.00002 0.77180 0.00001 0.00010 0.17558	0.00923 0.00000 0.00000 0.00000 0.00000 0.00000 0.01960 0.00189 0.00002 0.77227 0.00000 0.00005 0.17606

ADD.	11.00 tl	

P, ATM 10.000 P, PSIA 147.0 T, DEG K 1500.0 T, DEG F 2240.3	147.0 147.0 147.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 2.5217-3 2.7157-3 2.9420-3 28.970 28.970 28.970 0.2999 0.2955 0.2911 1.2966 1.3023 1.3083	10,000 10,000 10,000 10 147.0 147.0 147.0 1100.0 1000.0 900.0 8 1520.3 1340.3 1160.3 3.2095-3 3,5304-3 3,9227-3 4,4 28.970 28.970 28.970 20,0265 0,2818 0,2764 0 1,3147 1,3218 1,3301 1	0.2931 0.000 10.000 10.000 147.0 147.0 147.0 300.0 700.0 600.0 980.3 800.3 620.3 130-3 5.0435-3 5.8840-3 7. 3.970 28.969 28.970 2.2704 0.2642 0.2579 3.3399 1.3508 1.3623 554.7 520.9 484.3	10.000 10.000 10.000 147.0 147.0 147.0 500.0 400.0 300.0 440.3 260.3 80.3 0609-3 8.261-3 1.2202-2 28.970 28.970 30.037 0.2522 0.2474 0.3278 1.3737 1.3837 1.2884 444.0 398.6 327.1
MOLE FRACTIONS AR C02 0.04106 H20(L) 0.00000 H20 0.3885 NO 0.00108 NO2 0.00001 N2 0.76517 OH 0.00003 O2 0.14465	0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 0.03886 0.03887 0.03887 0.00065 0.00036 0.00018 0.00001 0.00001 0.00001 0.76539 0.76554 0.76563 0.00001 0.00000 0.00000	0.04106 0.04106 0.04106 0.0 0.00000 0.00000 0.00000 0.0 0.03887 0.03887 0.03887 0.0 0.00008 0.00003 0.00001 0.0 0.00001 0.00000 0.00000 0.0 0.76568 0.76570 0.76571 0.00000 0.0	04106 0.04106 0.04106 0 00000 0.00000 0.00000 0 03887 0.03887 0.03887 0 00000 0.00000 0.00000 0 00000 0.00000 0.00000 0 76571 0.76571 0.76572 0 00000 0.00000 0.00000 0	0.00914 0.00914 0.00914 0.04106 0.04106 0.04106 0.00000 0.00000 0.03552 0.03887 0.03887 0.00334 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.76572 0.76572 0.76572 0.00000 0.00000 0.00000 0.14521 0.14521 0.14521
P, ATM 15.000 P, PSIA 220.4 T, DEG K 2800.0 T, DEG F 4580.3	220.4 220.4 220.4 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 1.9514-3 2.0297-3 2.1134-3 28.822 28.869 28.903 0.4324 0.4073 0.3867 1.2106 1.2194 1.2280	15,000 15,000 15,000 1 220.4 220.4 220.0 2 2400.0 2300.0 2200.0 2 3860.3 3680.3 3500.3 3 2,2032-3 2,3003-3 2,4057-3 2,5 28,926 28,942 28,953 24 0,3700 0,3567 0,3460 0 1,2363 1,2440 1,2511 1	0.2931 5.000 15.000 15.000 220.4 220.4 220.4 100.0 2000.0 1900.0 320.3 3140.3 29.0.3 209-3 2.6473-3 2.7869-3 2. 3.960 28.964 28.967 3.374 0.3302 0.3240 .2576 1.2637 1.2695 870.8 851.8 832.1	15.000 15.000 15.000 220.4 220.4 220.4 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 9419-3 3.1150-3 3.3098-3 28.968 28.969 28.969 0.3185 0.3135 0.3088 1.2750 1.2803 1.2857 811.6 790.4 768.4
MOLE FRACTIONS AR CO 0,00908 CO2 0,03678 H 0,000048 H2 0,00004 H2 0,00053 H20 0,03340 N0 0,02906 N02 0,00005 N2 0,74560 0 0,00497 OH 0,00879 O2 0,12724	0.00265 0.00169 0.00102 0.03820 0.03923 0.03994 0.00028 0.00015 0.00008 0.00003 0.00003 0.00003 0.00036 0.00003 0.00003 0.003467 0.03572 0.03655 0.02549 0.02208 0.01886 0.00005 0.00208 0.00005 0.74905 0.75199 0.75449 0.00334 0.00217 0.00136 0.00696 0.00537 0.00404	0.00059 0.00032 0.00017 0. 0.04041 0.04070 0.04087 0. 0.00004 0.00002 0.00001 0. 0.00002 0.00001 0.00001 0. 0.00009 0.00005 0.00003 0. 0.03721 0.03771 0.03809 0. 0.01587 0.01313 0.01066 0. 0.00004 0.00004 0.00004 0. 0.75661 0.75841 0.75993 0. 0.00082 0.00047 0.00026 0. 0.000296 0.00210 0.00144 0.	00008 0.00004 0.00002 0 04097 0.04102 0.04104 0 00000 0.00000 0.00000 0 00001 0.00000 0.00000 0 00002 0.00001 0.00000 0 03836 0.03855 0.03868 0 03836 0.03857 0.00495 0 00004 0.00037 0.00035 0 76121 0.76227 0.76315 0 00095 0.00060 0.0003 0	0.00914 0.00914 0.00914 0.00001 0.00000 0.00000 0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00254 0.00170 0.00361 0.00254 0.00170 0.00003 0.00002 0.00002 0.76386 0.76442 0.76485 0.00001 0.00000 0.00000 0.00001 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.00011 0.00000 0.14332 0.14389 0.14438

ADD H201L)

P, ATM 20.000 P, PSIA 293.9 T, DEG K 1500.0 T, DEG F 2240.3	33.3333 F/A= 0.03000 20.000 20.000 293.9 293.9 293.9 1400.0 1300.0 1200.0 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.0000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.0000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.0000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.0	293.9 293.9 1100.0 1000.0 1520.3 1340.3 1 6.4195-3 7.0615-3 7.8 28.972 28.972 2 0.2910 0.2860 0 1.3084 1.3154 1	16 PHI = 0.4396 10.000 20.000 20.000 293.9 293.9 293.9 900.0 800.0 700.0 160.3 900.3 800.3 1461-3 8.8268-3 1.0088-2 18.972 28.972 28.972 0.2804 0.2742 0.2677 0.3238 1.3336 1.3445 584.7 553.3 519.7	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 1.1769-2 1.4123-2 1.7654-2 2.4937-2 28.972 28.972 28.972 30.694 0.2612 0.2551 1.3784 1.2541 483.2 443.0 397.8 324.3
MOLE FRACTIONS AR CO2 0.06086 H20'L' 0.00000 H20 0.05773 N0 0.00095 N02 0.00002 N2 0.75786 OH 0.00002 02 0.11350	0.06086 0.06086 0.06086 0.00000 0.00000 0.00000 0.05774 0.05774 0.05774 0.00057 0.00031 0.00016 0.00001 0.09001 0.00001 0.75806 0.75819 C.75827 0.00001 0.00000 0.00000	0.06086 0.06086 0. 0.00300 0.60000 0. 0.05774 0.05774 0. 0.00007 0.00003 0. 0.00001 0.00000 0. 0.75831 0.75833 0. 0.00000 0.00000 0.	00905 0.00905 0.00905 06086 0.6086 0.06086 00000 0.00000 0.00000 05774 0.05774 0.05774 00001 0.00000 0.00000 00000 0.00000 0.00000 75834 0.75835 0.75835 00000 0.00000 0.00000 11400 0.11400 0.11400	0.00905 0.00905 0.00905 0.00905 0.06086 0.06086 0.06086 0.06086 0.00000 0.00000 0.00000 0.05610 0.05774 0.05774 0.05774 0.0164 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.75835 0.75835 0.75835 0.75835 0.00000 0.00000 0.00000 0.00000 0.11400 0.11400 0.11400 0.11400
P, ATM 30,000 P, PSIA 440.9 T, DEG K 2800.0 T, DEG F 4580.3	3,9046-3 4.0609-3 4.2279-3 28,836 28,879 28,910 0.4300 0.4063 0.3869 1,2103 1,2187 1,2268	440.9 440.9 2400.0 2300.0 2 3860.3 3680.3 3 4.4073-3 4.6013-3 4.8 28.932 28.947 2 0.3713 0.3589 0 1.2345 1.2417 1	30.000 30.000 440.9 440.9 2200.0 2100.0 2500.3 3320.3 3140.3	30,000 30,000 30,000 30,000 440,9 440,9 440,9 440,9 1900,0 1800,0 1700,0 1600,0 29,0,0 2780,3 2600,3 2420,3 5,742-3 5.8843-3 6,2306-3 6,6201-3 28,969 28,971 28,972 28,972 0,3282 0,3230 0,3181 0,3136 1,2649 1,2700 1,2751 1,2801 830,5 810,0 788,7 766,7
MOLE FRACTIONS AR 0.00899 C0 0.00482 C02 0.05563 H02 0.00066 H2 0.00066 H20 0.05214 N0 0.0524 N0 0.02560 N02 0.00066 N2 0.74043 G 0.00811 OH 0.00868 02 0.09946	0.00319 0.00202 0.00122 0.05738 0.05864 0.0595 0.00022 0.00012 0.00008 0.00004 0.00003 0.00003 0.00003 0.00003 0.00003 0.00003 0.00005 0.00006 0.00006 0.00006 0.00006 0.74354 0.74618 0.7484 0.00209 0.00136 0.0008 0.000683 0.00525 0.0039	0.00070 0.00039 0. 0.06007 0.06042 0. 0.00003 0.00001 0. 0.00001 0.00002 0. 0.00011 0.00007 0. 0.01396 0.01155 0. 0.00005 0.00005 0. 0.75030 0.75189 0. 0.00051 0.00030 0. 0.00051 0.00030 0. 0.00051 0.00030 0. 0.00051 0.00030 0.	00905 0.00905 0.00905 00020 0.00910 0.00004 06063 0.06074 0.06080 00001 0.00000 0.00000 00001 0.00001 0.00001 00004 0.00002 0.00001 005697 0.05724 0.05743 00938 0.00746 0.00578 00004 0.00004 0.00004 75324 0.75437 0.75531 00016 0.00008 0.00004 00139 0.0091 0.00058 10889 0.10998 0.11091	0.00905 0.00905 0.00905 0.00905 0.00002 0.00001 0.00000 0.00000 0.6083 0.6085 0.06085 0.06085 0.0000 0.00000 0.00000 0.00000 0.0000 0.00000 0.00000 0.00000 0.0000 0.00000 0.00000 0.00000 0.05756 0.05764 0.05769 0.05771 0.00436 0.00318 0.00224 0.00150 0.75688 0.75671 0.75720 0.75788 0.00002 0.00001 0.00000 0.00000 0.00035 0.00020 0.00010 0.00005 0.11169 0.11233 0.11283 0.11323

H20 (1	

CASE= 0 0/F= 25.0000 P, ATM 40.000 40.000 P, PSIA 587,8 587.8 T, DEG K 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 9.4161-3 1.0089-2 M, MOL WT 28.975 28.975 CP, CAL/(GI(KI) 0.3138 0.3094 GAMMA (S) 1.2798 1.2848 SON VEL,M/SEC 742.2 718.5	F/A= 0.04000 PERCENT F 40.000 40.000 40.000 587.8 587.8 587.8 1300.0 1200.0 1100.0 1880.3 1700.3 1520.3 1.0865-2 1.1770-2 1.2840-2 28.975 28.975 28.975 0.3049 0.3002 0.2954 1.2902 1.2960 1.3024 693.8 668.0 641.2	40.000 40.000 40.000 587.8 587.8 567.8 1000.0 900.0 800.0 1340.3 1160.3 980.3 1.4124-2 1.5693-2 1.7655-2 2. 28.975 28.974 28.974 0.2902 0.2843 0.2779	40.000 40.000 40.000 40.000 40.000 587.8 587.8 587.8 587.8 587.8 700.0 600.0 500.0 400.0 300.0 800.3 620.3 440.3 260.3 80.3 0177-2 2.3540-2 2.8248-2 3.5983-2 5.0923-2 28.974 28.974 28.974 29.526 31.339 0.2712 0.2644 0.2580 0.8584 0.2911 1.3385 1.3503 1.3622 1.2143 1.2882 518.5 482.2 442.1 369.8 320.2
MOLE FRACTIONS AR C02 0.08097 0.00897 H20(L) 0.00000 0.00000 H20 0.07624 0.07628 N0 0.00081 0.00001 N2 0.75071 0.75087 OH 0.00002 0.00001 O2 0.08296 0.08313	0.00897 0.00897 0.00897 0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 0.07625 0.07625 0.07625 0.00027 0.00013 0.00006 0.00021 0.00001 0.00001 0.75098 0.75105 0.75109 0.00000 0.00000 0.00000 0.08324 0.08331 0.08335	0.08027 0.08027 0.08027 0 0.00000 0.00000 0.00000 0 0.07625 0.07625 0.07625 0 0.00002 0.00001 0.00000 0 0.00000 0.00000 0.00000 0 0.75111 0.75111 0.75112 0 0.00000 0.00000 0.00000 0	.00697 0.00897 0.00897 0.00897 0.00897 .08027 0.08027 0.08027 0.08027 0.08027 .00000 0.00000 0.00000 0.01868 0.07545 .00525 0.07625 0.07625 0.05757 0.00080 .00000 0.00000 0.00000 0.00000 0.00000 .00000 0.00000 0.00000 0.00000 0.00000 .75112 0.75112 0.75112 0.75112 0.75112 .00000 0.00000 0.00000 0.00000 0.00000 .08339 0.08339 0.08339 0.08339 0.08339
CASE= 0 0/F= 25.0000 P, ATM 50.000 50.000 P, PSIA 734.8 734.8 I, DEG K 2800.0 2700.0 I, DEG K 4580.3 4400.3 RHO, G/CC 6.2637-3 6.5089-3 M, MOL NT 28.783 28.841 CP, CAL/IG/IKI 0.4610 0.4324 GAMMA (5) 1.2006 1.2088 SON VEL, M/SEC 985.4 970.0	F/A= 0.04000 PERCENT f 50.000 50.000 50.000 734.8 734.8 734.8 2600.0 2500.0 2400.0 4200.3 4040.3 3860.3 6.7693-3 7.0475-3 7.3466-3 28.884 28.915 28.936 0.4085 0.3891 0.3737 1,2170 1.2250 1.2324 954.4 938.4 921.9	50.000 50.000 50.000 734.8 734.8 734.8 734.8 2300.0 2200.0 2100.0 3680.3 3500.3 3320.3 7.6698-3 8.0210-3 8.4047-3 8. 28.950 28.960 28.966 0.3616 0.3520 0.3442	50,000 50,000 50,000 50,000 50,000 734.8 734.8 734.8 734.8 734.8 2000.0 1900.0 1800.0 1700.0 1600.0 3140.3 2550.3 2780.3 2600.3 2420.3 8261-3 9,2914-3 9,8080-3 1,0385-2 1,1034-2 28,970 28,972 28,973 28,974 28,974 0.3378 0.3322 0.3272 0.3226 0.3181 1,2560 1,2608 1,2655 1,2702 1,2749 849.1 829.2 808.5 787.2 765.1
MOLE FRACTIONS AR C0 0.00891 0.00893 C02 0.07392 0.07606 H 0.00033 0.00019 H02 0.00005 0.00004 H2 0.00065 0.07202 N0 0.02174 0.01902 N0 0.02174 0.01902 N2 0.73526 0.73813 O 0.00205 0.001643 OH 0.00821 0.00643 O2 0.07202 0.07336	0.00894 0.00895 0.00896 0.00243 0.00147 0.00085 0.07759 0.07864 0.07932 0.00010 0.00005 0.00003 0.00003 0.00003 0.00012 0.07312 0.07399 0.07465 0.01646 0.01406 0.01183 0.00005 0.00005 0.00005 0.74052 0.74252 0.74418 0.00089 0.0056 0.00034 0.00493 0.00369 0.00269 0.07457 0.07578 0.07696	0.00046 0.00024 0.00012 0 0.07974 0.07979 0.08013 0 0.00001 0.00000 0 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00551 0.07578 0 0.0053 0.00004 0.00004 0.00633 0 0.0004 0.00004 0.00004 0.74558 0.74674 0.74772 0.00020 0.00013 0.000085 0 0.000130 0.000085 0	

CASE= 0 0/F= 16.6667 P, ATM 0.5000 0.5000 P, PSIA 7.3 T, DEG k 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 1.1772-4 M, MOL WT 28.979 28.979 CP, CAL//GJIKI 0.3231 0.3184 GAMMA (S) 1.2656 1.2745 SON VEL,M/SEC 739.2 715.5	F/A= 0.06000 PERCENT 6 0.5000 0.5000 0.5000 7.3 7.3 7.3 1300.0 1200.0 1100.0 1880.3 1700.3 1520.3 1.3583-4 1.4715-4 1.6053-4 28.979 28.979 28.979 0.3138 0.3090 0.3038 1.2797 1.2853 1.2915 690.9 665.2 638.4	0.5000 0.5000 0.5000 7.3 7.3 7.3 1000.0 900.0 800.0 1340.3 1160.3 980.3	0.5000 0.5000 0.5000 0.5000 7.3 7.3 7.3 7.3 700.0 600.0 500.0 400.0 800.3 620.3 440.3 260.3	7.3 300.0 80.3 6.1706-4 30,380 1,7794
MOLE FRACTIONS AR 0.00880 0.00800 C0 0.00001 0.00000 H20 0.11201 0.00006 0.00006 0.00006 0.00006 0.00006 0.000365 0.003374	0.00880 0.00P90 0.00880 0.00000 0.00000 0.00000 0.11801 0.11802 0.11802 0.00000 0.00000 0.00000 0.11224 0.11224 0.11224 0.09014 0.00007 0.00003 0.73700 0.73703 0.73705 0.00001 0.00000 0.00000 0.02360 0.02384 0.02386	0.00880 0.00880 0.00880 0.00000 0.00000 0.00000 0.11802 0.11802 0.11802 0.00000 0.00000 0.00000 0.11224 0.11224 0.10000 0.73706 0.73707 0.73707 0.00000 0.00000 0.00000 0.02387 0.02388 0.02388	0.00680 0.00880 0.00880 0.00880 0.00000 0.00000 0.00000 0.00000 0.11802 0.11802 0.11802 0.11802 0.00000 0.00000 0.00000 0.00000 0.11224 0.11224 0.11224 0.11224 0.00000 0.00000 0.00000 0.00000 0.73707 0.73707 0.73707 0.73707 0.00000 0.00000 0.00000 0.00000 0.02388 0.02388 0.02388 0.02388	0.00000 0.11802 0.04611 0.06613 0.00000 0.73707 0.00000
CASE= 0 0/F= 16.6667 P, ATM 1.0000 1.0000 P, PSIA 14.7 14.7 T, DEG K 2800.0 2700.0 T, DEG F 4580.3 4400.3 RHO, 6/CC 1.2037-4 1.2634-4 M, MOL WT 27.657 27.991 CP, CAL/IGIIKI 0.9602 0.8825 GAMMA ISI 1.1408 SON VEL, M/SEC 979.9 957.9	F/A= 0.06000 PERCENT I 1.0000 1.0000 1.0000 14.7 14.7 14.7 2600.0 2500.0 2400.0 4220.3 4040.3 3860.3 1.3251-4 1.3891-4 1.4557-4 28.270 28.495 28.667 0.7659 0.6723 0.5850 1.1495 1.1578 1.1694 937.6 919.0 902.2	1.0000 1.0000 1.0000 14.7 14.7 14.7 2300.0 2200.0 2100.0 3680.3 3500.3 3320.3	2 1.0000 1.0000 1.0000 1.0000 14.7 14.7 14.7 14.7 2000.0 1900.0 1800.0 1700.0 3140.3 29.0.3 2780.3 2600.3 1.7640-4 1.8579-4 1.9616-4 2.0772-4 28.950 28.965 28.973 28.976 0.3723 0.3534 0.3415 0.3336 1.2333 1.2448 1.2552 1.2558 841.7 823.9 804.6 783.5	14.7 1600.0 2420.3 2.2072-4 28.978 0.3278 1.2649
MOLE FRACTIONS AR CO 0.04947 0.03929 CO2 0.06316 0.07470 H 0.00795 0.00480 H02 0.00001 0.00001 H2 0.00954 0.00721 H20 0.08358 0.09088 N0 0.01505 0.01264 N2 0.69591 0.70560 0 0.01032 0.00661 OH 0.02003 0.01681 O2 0.03657 0.03391	0.00858 0.00865 0.00870 0.02944 0.02064 0.01343 0.08568 0.09540 0.10332 0.00275 0.00150 0.00076 0.00001 0.00031 0.00000 0.00521 0.00359 0.00234 0.07685 0.10154 0.10508 0.01042 0.00846 0.00679 0.71383 0.72053 0.72574 0.00408 0.00242 0.00139 0.01212 0.00898 0.00646 0.03102 0.02828 0.02598		0.00879 0.00880 0.0088	0.00002 0.11800 0.00000 0.00000 0.00000 0.011218 0.00067 0.73670 0.00000 0.00000

CASE= 0 0/F= P, ATM 1.5000 P, PSIA 22.0 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 3.5316-4 M, MOL WT 28.979 CP, CAL//(G/I/K) 0.3274 GAMMA (S) 1.2655 SON VEL,M/SEC 738.0	14.6540 F/A= 0.06824 1.5000 1.5000 1.5000 22.0 22.0 22.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 3.7840-4 4.0752-4 4.4185-4 28.981 28.981 28.981 0.3220 0.3171 0.3123 1.2708 1.2755 1.2814 714.4 689.8 664.2	1100.0 1000.0 90 1520.3 1340.3 116 4.8161-4 5.2978-4 5.886 28.981 28.981 28.9 0.3071 0.3015 0.2 1.2875 1.2944 1.3	2.0 22.0 22.0 0.0 800.0 700.0 0.3 980.3 800.3 4-4 6.6222-4 7.5682-4 8 981 28.981 28.981 951 0.2880 0.2806	1,5000 1,5000 1,5000 1,5000 22.0 22.0 22.0 22.0 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 82,96-4 1,0596-3 1,3244-3 1,9753-3 28,981 28,981 28,981 32,418 0,2731 0,2658 0,2590 0,7396 1,3353 1,3477 1,3600 1,1664 479,4 439,7 395,1 299,6
MOLE FRACTIONS AR 0.000873 C0 0.00008 C02 0.13307 H2 0.00003 H201L1 0.00000 H20 0.12664 N0 0.00002 N2 0.73138 OH 0.00004	0.00003 0.00001 0.00000 0.13313 0.13315 0.13316 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.12666 0.12667 0.12668 0.00001 0.00000 0.00000 0.73141 0.73142 0.73143 0.00000 0.00000 0.00000	0.00873 0.00873 0.00 0.00000 0.00000 0.00 0.13316 0.13316 0.13 0.00600 0.00000 0.00 0.00000 0.00000 0.00 0.12668 0.12668 0.12 0.00000 0.00000 0.00 0.73143 0.73143 0.73 0.00000 0.00000 0.00 0.00000 0.00000 0.00	000 0.00000 0.00000 0.13316 0.13316 000 0.00000 0.00000 000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00873 0.00873 0.00873 0.00873 0.00000 0.00000 0.00000 0.00000 0.13316 0.13316 0.13316 0.13316 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.10602 0.12668 0.12668 0.12668 0.02066 0.00000 0.00000 0.00000 0.00000 0.73143 0.73143 0.73143 0.73143 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
P, ATM 2.0000 P, PSIA 29.4 T, DEG K 2800.0 T, DEG F 4580.3	2.0000 2.0000 2.0000 29.4 29.4 29.4 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3	2400.0 2300.0 220 3860.3 3680.3 350 2.9053-4 3.0444-4 3.192 28.608 28.728 28. 0.5756 0.5158 0.4 1.1711 1.1826 1.1	9.4 29.4 29.4 0.0 2100.0 2000.0 0.3 3320.3 3140.3 5-4 3.3518-4 3.5245-4 3 817 28.879 28.921 656 0.4251 0.3938	2.0000 2.0000 2.0000 2.0000 29.4 29.4 29.4 29.4 1930.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 17134-4 3.9219-4 4.1539-4 4.4142-4 28.947 28.963 28.973 28.977 0.3706 0.3538 0.3420 0.3335 1.2345 1.2448 1.2532 1.2600 820.8 802.0 781.9 760.6
MOLE FRACTIONS AR 0.00835 C0 0.05370 C02 0.07368 H 0.00552 H02 0.00001 H2 0.01058 H20 0.09662 N0 0.01142 N2 0.69400 0 0.00555 OH 0.01603 02 0.02112	0.08491 0.09545 0.10483 0.00363 0.00214 0.00121 0.00001 0.00001 0.00000 0.00826 0.00629 0.00467 0.10624 0.11163 0.11591 0.00910 0.00701 0.00522 0.70238 0.70953 0.71543 0.00337 0.00195 0.00106 0.01223 0.00899 0.00635	0.00862 0.00866 0.00 0.01870 0.01291 0.00 0.11275 0.11908 0.12 0.00065 0.00033 0.00 0.00000 0.00000 0.00 0.00338 0.00238 0.00 0.11919 0.12163 0.12 0.00375 0.00259 0.00 0.72014 0.72376 0.72 0.00054 0.00026 0.00 0.00431 0.00280 0.00 0.00431 0.00280 0.00	881 0.00532 0.00315 390 0.12737 0.12973 016 0.00007 0.00003 0000 0.00000 0.00000 162 0.00106 0.00067 340 0.12462 0.12545 171 0.00108 0.00055 643 0.72831 0.72958 0100005 0.00005	0.00872 0.00873 0.00873 0.00873 0.00175 0.00091 0.00043 0.00019 0.13125 0.13217 0.13269 0.13295 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00004 0.00023 0.00012 0.00006 0.12598 0.12630 0.12649 0.12659 0.00037 0.00019 0.00010 0.00004 0.73040 0.73089 0.73117 0.73131 0.00001 0.00000 0.00000 0.00000 0.00029 0.00014 0.00006 0.00003 0.00082 0.00014 0.00006 0.00001

ADD H201L1

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CASE =
                  0/F= 14.2857
                                  F/A= 0.07000
                                                  PERCENT FUEL= 6.5421
                                                                            PHI= 1.0258
                3,0000
P. ATM
                         3.0000
                                  3.0000 3.0000 3.0000 3.0000
                                                                      3.0000
                                                                               3.0000
                                                                                         3.0000
                                                                                                  3,0000
                                                                                                           3,0000
                                                                                                                    3.0000
                                                                                                                             3 0000
P. PSIA
                  44.1
                           44.1
                                   44.1
                                             44.1
                                                      44.1
                                                               44.1
                                                                        44.1
                                                                                 44 1
                                                                                          44.1
                                                                                                  44.1
                                                                                                            44.1
                                                                                                                      44 1
                                                                                                                               44 1
T, DEG K
                                                                                          700.0
                 1500.0
                         1400.0
                                  1300.0
                                            1200.0
                                                     1100.0
                                                              1000.0
                                                                       900.0
                                                                                800.0
                                                                                                   600.0
                                                                                                            500.0
                                                                                                                     400.0
                                                                                                                              300.0
                                                              1340.3
                                                                                         800.3
                                                                                                            440.3
T. DEG F
                2240.3
                         2060.3
                                  1880.3
                                            1700.3
                                                     1520.3
                                                                      1160.3
                                                                                980.3
                                                                                                   620.3
                                                                                                                     260.3
                                                                                                                               80.3
RHO, G/CC
              7.0283-4 7.5303-4 8.1095-4 8.7853-4 9.5840-4 1.0542-3 1.1714-3 1.3178-3 1.5066-3 1.7623-3 2.1183-3 2.6488-3 4.0114-3
                                  28.836
M, MOL WT
                28.836
                         28.836
                                           28.836
                                                     28.836
                                                              28.836
                                                                       28.836
                                                                                28.836
                                                                                         28.846
                                                                                                  28.922
                                                                                                           28,970
                                                                                                                    28.981
CP, CAL/IGITED
                0.3262
                         0.3226
                                  0.3188
                                           0.3146
                                                     0.3101
                                                              0.3052
                                                                       0.2994
                                                                               0.2927
                                                                                         0.2949
                                                                                                                    0.2599
                                                                                                                             0.5144
                                                                                                  0.2951
                                                                                                           0.2720
                1,2679
                         1.2716
                                  1.2758
                                           1.2804
                                                     1.2857
                                                              1,2917
                                                                       1.2990
                                                                               1.3081
GAMMA (S)
                                                                                         1.3112
                                                                                                  1.3150
                                                                                                           1.3404
                                                                                                                    1.3587
                                                                                                                             1.1892
SON VEL.M/SEC
                 740.5
                          716.5
                                            665.6
                                                              610.3
                                                                                549.3
                                                                                                            438.6
                                   691.5
                                                     638.6
                                                                       580.6
                                                                                          514.3
                                                                                                   476.3
                                                                                                                     394.9
                                                                                                                              300.2
MOLE FRACTIONS
AR
               0.00867
                        0.00867 0.00867
                                         0.00867
                                                   0.00867 0.00867
                                                                     0,00867 0,00867
                                                                                       0.00868 0.00870
                                                                                                          0.00871
                                                                                                                  0,00872
                                                                                                                           0.00867
               0.00000
                        0.00000
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                                          0.00000
                                                            0.00000
                                                                              0.00000
CISI
                                                   0.00000
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                                                                                       0.00000
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                                                                                                          0.00000
                                                                                                                  0.00000
                                                                                                                            0.00501
               0.00000
                        0.00000
                                 0.00000
                                          0.00000
                                                            0.00000
                                                                     0.00000
                                                                              0.00000
                                                                                                 0.00148
CH4
                                                   0.00000
                                                                                       0.00017
                                                                                                          0.00232
                                                                                                                  0.00251
                                                                                                                            0.00001
CO
               0,00727
                        0.00692
                                 0,00647
                                          0.00590
                                                   0.00517
                                                            0.00427
                                                                     0.00321
                                                                              0.00207
                                                                                       0.00099
                                                                                                0.00015
                                                                                                          0.00001
                                                                                                                  0.00000
                                                                                                                           0.00000
                        0.12876
                                         0.12978
C02
               0.12840
                                 0.12921
                                                   0.13050
                                                            0.13140
                                                                     0.13247
                                                                              0,13360
                                                                                       0.13457
                                                                                                0.13445
                                                                                                         0.13398
                                                                                                                  0.13385
                                                                                                                           0.13066
                        0.00313
                                                            0.00578
                                                                              0.00796
H2
               0.00278
                                0.00358
                                          0.00415
                                                   0.00488
                                                                     0.00684
                                                                                       0.00837
                                                                                                0.00398
                                                                                                         0.00076
                                                                                                                  0.00006
                                                                                                                           0.00000
                        0.00000
                                0.00000
                                          0.00000
                                                   0.00000
                                                            0.00000
H20 (L1
               0.00000
                                                                     0.00000
                                                                              0.00000
                                                                                       0.00000
                                                                                                0.00000
                                                                                                          0.00000
                                                                                                                  0.00000
                                                                                                                            0.11895
H20
               0.12630
                        0,12595
                                 0.12550
                                          0.12493
                                                   0.12420
                                                            0.12330
                                                                     0.12224
                                                                              0.12111
                                                                                       0.12040
                                                                                                0.12249
                                                                                                          0.12424
                                                                                                                  0.12464
                                                                                                                            0.01012
               0.00000
NH3
                        0,00000 0,00000
                                          0.00000
                                                   0.00000
                                                            100000 0.00000 0.00001
                                                                                       0.00002 0.00003
                                                                                                         0.00002
                                                                                                                  0.00001
                                                                                                                            0.00000
                                                                                                                  0.73021
N2
               0.72657
                        0.72657 0.72657
                                          0.72657 0.72657
                                                            0.72657
                                                                     0.72657 0.72657 0.72692 0.72872
                                                                                                          0.72995
                                                                                                                            0.72658
     CASE =
                  0/F= 14.2857
                                  F/A= 0.07000
                                                   PERCENT FUEL=
                                                                  6.5421
                                                                             PHI= 1.0258
P, ATM
                                  4,0000
                                           4,0000
                                                              4.0000
                4.0000
                         4.0000
                                                     4.0000
                                                                      4.0000
                                                                               4.0000
                                                                                         4.0000
                                                                                                  4.0000
                                                                                                           4.0000
                                                                                                                    4 0000
                                                               58.8
P, PSIA
                58.8
2800.0
                         58.8
2700.0
                                    58.8
                                             58.8
                                                      58.8
                                                                        58.8
                                                                                  58.8
                                                                                         58.8
                                                                                                  38.8
                                                                                                            58.8
                                                                                                                      58.8
                                  2600.0
                                           2500.0
                                                              2300.0
                                                                                         2000.0
T, DEG K
                                                     2400.0
                                                                       2200.0
                                                                               2100.0
                                                                                                  1900.0
                                                                                                           1800.0
                                                                                                                    1700.0
                         4400.3
                                  4220.3
                                           4040.3
                                                     3860.3
                                                              3680.3
                                                                       3500.3
                                                                                                                    2600.3
T, DEG F
                4580.3
                                                                               3320.3
                                                                                         3140.3
                                                                                                 2960.3
                                                                                                           2780.3
              4.8580-4 5.0804-4 5.3127-4 5.5563-4 5.8131-4 6.0852-4 6.3756-4 6.6876-4 7.0260-4 7.3974-4 7.8089-4 8.2685-4 8.7853-4
RHO, G/CC
                                  28.336
M, MOL HT
                27,904
                         28,139
                                           28.496
                                                     28,620
                                                              28,712
                                                                      28.774
                                                                               28,810
                                                                                         28.827
                                                                                                  28,833
                                                                                                           28.835
                                                                                                                    28,836
CP, CAL/IGITED
                0.7874
                         0.7178
                                  0.6501
                                           0.5859
                                                     0.5266
                                                              0.4729
                                                                      0.4248
                                                                               0.3841
                                                                                         0.3568
                                                                                                  0.3432
                                                                                                           0.3368
                                                                                                                    0.3328
                                                              1,1944
GAMMA (S)
                1.1516
                         1.1560
                                  1.1623
                                           1,1707
                                                     1.1813
                                                                      1.2102
                                                                                1.2280
                                                                                         1,2434
                                                                                                  1.2526
                                                                                                           1.2577
                                                                                                                    1.2613
                                                                                                                             1.2645
SON VEL.M/SEC
                 980.2
                          960.3
                                   941.7
                                            924.1
                                                      907.5
                                                               891.9
                                                                       877.1
                                                                                862.7
                                                                                          846.9
                                                                                                   828.4
                                                                                                            807.9
                                                                                                                     786.3
                                                                                                                              763.8
MOLE FRACTIONS
               0.00839
                        0.00846 0.00852 0.00857 0.00861
                                                            0.00864
                                                                     0.00866 0.00867
                                                                                       0.00867 0.00867
AR
                                                                                                          0.00867
                                                                                                                  0.00867
                                                                                                                            0.00867
                                                                                                          0.00799
CO
               0.04924
                        0.04024 0.03200
                                          0.02484 0.01897
                                                            0.01448
                                                                     0.01136 0.00950
                                                                                       0.00861
                                                                                                0.00822
                                                                                                                  0.00779
002
               0.08205
                        0.09216 0.10133 0.10924 0.11569 0.12061
                                                                     0.12403 0.12605
                                                                                       0.12702
                                                                                                0.12744
                                                                                                          0.12768
                                                                                                                  0.12789
                                                                                                                            0,12812
                        0.00243 0.00145
Н
               0.00394
                                         0.00083 0.00046 0.00025 0.00013 0.00007
                                                                                       0.00004 0.00002
                                                                                                          0.00001
                                                                                                                   0.00000
                                                                                                                            0.00000
                                         0.00000 0.00000 0.00000
H02
                        6.00001 0.00000
                                                                     0.00000 0.00000
               0.00001
                                                                                       0.00000
                                                                                                 0.00000
                                                                                                          0.00000
                                                                                                                   0.00000
                                                                                                                           0.00000
H2
               0.00937
                        0.00741 0.00578
                                         0.00446 0.00345
                                                            0.00270
                                                                     0.00220 0.00195
                                                                                                0.00196
                                                                                                          0.00209
                                                                                       0.00189
                                                                                                                   0.00227
                                         0.12029 0.12288
H20
               0.10709
                        0.11250 0.11687
                                                            0.12475
                                                                     0.12600 0.12671
                                                                                       0.12701
                                                                                                 0.12705
                                                                                                          0.12696
                                                                                                                   0.12680
                                                                                                                           0.12658
                                                            0.00165
                                                                                                0.00005
               0.00984
                        0.00761 0.00566
                                         0.00401 0.00268
                                                                     0.00091
                                                                              0.00042
01/1
                                                                                       0.00016
                                                                                                          0.00002
                                                                                                                   0.00000
                                                                                                                           0.00000
                                                            0.72261
                                                                                                         0.72654
N2
               0.69817
                        0.70521
                                 0.71115
                                          0.71599 0.71979
                                                                     0.72455
                                                                              0.72570
                                                                                        0.72626
                                                                                                 0.72647
                                                                                                                   0.72656
0
               0.00337
                        0.00199 0.00111 0.00058 0.00028
                                                            0.00012 0.00004
                                                                              0.00001
                                                                                                 0.00000
                                                                                       0.00000
                                                                                                          0,00000
                                                                                                                   0,00000
                                                                                                                            0.00000
ñн
                                 0.00694 0.00477
                                                            0.00190 0.00107
                                                                              0.00054
               0.01295 0.00967
                                                    0.00311
                                                                                       0.00024
                                                                                                 0.00010
                                                                                                          0.00003
                                                                                                                   0,00001
                                                                                                                            0.00000
02
               0.01558
                        0.01230 0.00919 0.00640
                                                   0.00408
                                                            0.00229 0.00106
                                                                              0.00037
                                                                                       0.00009
                                                                                                                   0.00000
                                                                                                 0.00002
                                                                                                          0,00000
                                                                                                                            0.00000
```

ADD CISI ADD H20(L)

```
0 0/F= 12.5000
                                F/A= 0.08000
                                             PERCENT FUEL= 7.4074 PHI= 1.1723
P. ATM
               6.0000 6.0000
                                6.0000
                                         6,0000 6,0000 6,0000 6,0000 6,0000 6,0000
                                                                                            6.0000
                                                                                                   6.0000
                                                                                                             6.0000
                                                                                                                     6.0000
P, PSIA
               88.2
                        88.2
                                 88.2
                                          88.2
                                                   88.2
                                                           88.2
                                                                   88.2
                                                                           88.2
                                                                                    88.2
                                                                                            88.2
                                                                                                     88,2
                                                                                                             88.2
                                                                                                                       88.2
               1500.0
                                         1200.0
                                                 1100.0
                                                                            800.0
                        1400.0
                                1300.0
                                                         1000.0
T, DEG K
                                                                   900.0
                                                                                    700.0
                                                                                             600.0
                                                                                                     500.0
                                                                                                              400.0
                                                                                                                      300.0
               2240.3
                                1880.3
                                         1700.3
                                                         1340.3
                                                                  1160.3
                                                                            980.3
                                                                                                     440.3
T, DEG F
                        2060.3
                                                 1520.3
                                                                                    800.3
                                                                                            620.3
                                                                                                              260.3
                                                                                                                       80.3
RHO, G/CC
             1.3671-3 1.4648-3 1.5775-3 1.7089-3 1.8643-3 2.0508-3 2.2806-3 2.5898-3 3.0001-3 3.5235-3 4.2370-3 5.2981-3 8.2330-3
                                         28.046
M. MOL WT
               28.046
                        28.046
                                28.046
                                                 28.046
                                                        28.047
                                                                   28.071
                                                                           28.335
                                                                                   28.721
                                                                                            28.913
                                                                                                    28,973
                                                                                                             28.983 33.778
CP. CAL/(G1(K)
               0.3338
                        0.3313
                                0.3289
                                         0.3266
                                                 0.3246
                                                          0.3238
                                                                  0.3481
                                                                           0.4527
                                                                                   0.3763
                                                                                            0.3107
                                                                                                    0.2800
                                                                                                             0.2676
                                                                                                                     0.4106
                        1.2721
                                         1.2771
                                                         1,2809
                                                                           1,2308
GAMMA (S)
               1.2695
                                1,2746
                                                 1.2793
                                                                  1,2692
                                                                                   1.2607
                                                                                            1.2989
                                                                                                    1.3277
                                                                                                             1.3447
                                                                                                                      1.2024
SON VEL.M/SEC
                         726.6
                                          674.0
                                                  645.9
                751.4
                                 700.9
                                                          616.2
                                                                   581.7
                                                                            537.5
                                                                                    505.4
                                                                                             473.4
                                                                                                     436.5
                                                                                                              392.8
                                                                                                                      298.0
MOLE FRACTIONS
AR
              0,00836 0.00836 0.00836
                                       0.00836 0.00836 0.00836 0.00837 0.00844 0.00856 0.00858
                                                                                                   0.00852 0.00844 0.00836
              0.00000
                       0.00000 0.00000
                                        0.00000 0.00000 0.00000
                                                                 0.00000 0.00000 0.00000 0.00426
0151
                                                                                                   0.01301
                                                                                                            0.02234
                                                                                                                   0.03236
              0.00000 0.00000 0.00000
                                        0.00000 0.00000 0.00002
                                                                 0.00043
                                                                          0.00511
CH4
                                                                                  0.01199 0.01323
                                                                                                   0.00979
                                                                                                           0.00516 0.00000
CO
              0.04458
                       0.04259 0.04013
                                        0.03708 0.03328 0.02854
                                                                 0.02225 0.01088 0.00222 0.00020
                                                                                                   0.00001
                                                                                                            0.00000 0.00000
                                       0.11230 0.11610 0.12083 0.12684
                                                                          0.13493
503
              0.10480
                       0.10679 0.10925
                                                                                  0.13876 0.13565
                                                                                                   0.12951
                                                                                                            0.12342 0.11701
                                       0.02765 0.03143 0.03609 0.04076 0.03394
H2
              0.02015
                       0.02214 0.02460
                                                                                  0.01598
                                                                                          0.00470
                                                                                                   0.00078
                                                                                                           0.00005
                                                                                                                   0.00000
                                                        0.00000 0.00000 0.00000
H201L1
              0.00000
                       0.00000 0.00000
                                        0.00000 0.00000
                                                                                  0.00000
                                                                                          0.00000
                                                                                                   0.00000 0.00000
                                                                                                                    0.13735
H20
              0.12200
                       0.12001 0.11755
                                        0.11450 0.11070
                                                        0.10600 0.10059 0.09932
                                                                                  0.10548 0.11466
                                                                                                   0.12453 0.13322
                                                                                                                    0.00480
NH3
              0.00000 0.00000 0.00000 0.00000 0.00001 0.00002 0.00005 0.00010 0.00010 0.00007
                                                                                                   0.00004 0.00001
                                                                                                                    0.00000
N2
              0.70012 0.70012 0.70012 0.70012 0.70012 0.70014 0.70072 0.70729 0.71692 0.71866 0.71383 0.70735
                                                                                                                    0.70012
     CASE = 0 0/F = 12.5000
                                F/A= 0.08000
                                               PERCENT FUEL= 7.4074
                                                                        PHI= 1.1723
                                        10.000 10.000
                                                        10.000
                                                                 10.000 10.000 10.000
P. ATM
               10.000
                       10.000
                                10.000
                                                                                            10.000
                                                                                                    10.000
                                                                                                             10 000
P. PSIA
               147.0
                        147.0
                                147.0
                                         147.0
                                                 147.0
                                                          147.0
                                                                   147.0
                                                                           147.0
                                                                                  147.0 117.0
2000.0 1900.0
                                                                                                    147.0
                                                                                                             147.0
                                2600.0
                                                          2300.0
                                                                  2200.0
                                                                           2100.0
                                                                                                    1800.0
T. DEG K
               2800.0
                        2700.0
                                         2500.0
                                                 2400.0
                                                                                                            1700.0
                        4400.3 4220.3
                                                          3680.3
                                                                 3500.3
                                                                                  3140.3
                                                                                           2960.3
T. DEG F
               4580.3
                                         4040.3 3860.3
                                                                         3320.3
                                                                                                    2780.3
                                                                                                             2600.3
              1.2057-3 1.2563-3 1.3088-3 1.3639-3 1.4223-3 1.4851-3 1.5531-3 1.6273-3 1.7088-3 1.7988-3 1.8988-3 2.0105-3 2.1362-3
RHO. G/CC
               27.701
                       27.833 27.923
                                         27,979
                                                 28.011
                                                          28.028
                                                                  28.037
                                                                           28.042
                                                                                   28.044
                                                                                            28.045
                                                                                                    28.045
                                                                                                             28.046
M, MOL WT
CP, CAL/(G)(K)
               0.6260
                        0.5488
                                0.4798
                                         0.4268
                                                 0.3919
                                                          0.3709
                                                                  0.3587
                                                                           0.3515
                                                                                   0.3470
                                                                                            0.3437
                                                                                                    0.3410
                                                                                                             0.3386
                                                                                                             1,2647
GAMMA (S)
               1.1714
                        1.1836
                                1.1993
                                         1.2163
                                                  1,2310
                                                          1,2418
                                                                  1.2490
                                                                           1.2539
                                                                                   1.2573
                                                                                            1.2600
                                                                                                    1,2624
                                                                                                                      1.2671
SON VEL.M/SEC
                992.2
                         977.0
                                 963.6
                                          950.6
                                                  936.4
                                                           920.5
                                                                   902.7
                                                                            883.6
                                                                                    863.4
                                                                                             842.5
                                                                                                     820.8
                                                                                                              798.4
                                                                                                                      775.2
MOLE FRACTIONS
              0.00826 0.00829 0.00832 0.00834 0.00835 0.00836 0.00836 0.00836 0.00836 0.00836
AR
                                                                                                  0.00836 0.00836 0.00836
CO
              0.06515 0.06039 0.05699 0.05479 0.05343 0.05252 0.05181 0.05114
                                                                                  0.05043 0.04962
                                                                                                   0.04868
                                                                                                           0.04755 0.04621
ยกว
              0.08240 0.08795 0.09173 0.09423 0.09576 0.09676 0.09752 0.09822 0.00304 0.00203 0.00134 0.00087 0.00055 0.00034 0.00020 0.00011
                                                                                  0.09894 0.09975
                                                                                                   0.10070 0.10182 0.10317
Н
                                                                                  0.00006 0.00003
                                                                                                   0.00001
                                                                                                            0.00001 0.00000
              H2
                                                                                  0.01431 0.01511
                                                                                                   0.01605
                                                                                                            0.01717 0.01852
H20
              0.12113 0.12457 0.12688
                                       0.12823 0.12885
                                                        0.12899 0.12879 0.12837
                                                                                  0,12777 0,12701
                                                                                                   0.12609
                                                                                                            0.12497 0.12363
                                                        0.00023 0.00010 0.00004
NO
              0.00469 0.00303 0.00180
                                       0.00098 0.00049
                                                                                  0.00001 0.00000
                                                                                                   0.00000
                                                                                                            0.00000 0.00000
              0.68918 0.69329 0.69615
                                       0.69796 0.69900
                                                         0.69956 0.69985 0.70000
N2
                                                                                  0.70006
                                                                                          :0.70009
                                                                                                   0.70011
                                                                                                            0.70011 0.70012
0
              0.00102
                      0.00051 0.00023
                                       0.00009 0.00003
                                                         0.00001
                                                                 0.00000 0.00000
                                                                                  0.00000
                                                                                          0.00000
                                                                                                   0.00000
                                                                                                            0.00000 0.00000
ÖН
              0.00759 0.00513 0.00326 0.00195 0.00109
                                                        0.00058 0.00028 0.00013
                                                                                  0.00006
                                                                                          0.00002 0.00001
                                                                                                            0.00000 0.00000
              0.00359 0.00199 0.00095 0.00039 0.00014 0.00004 0.00001 0.00000
                                                                                  0.00000 0.00000
                                                                                                   0.00000 0.00000 0.00000
```

ADD C(S) ADD H20(L)

```
CASE=
                  0/F= 11,1111
                                  F/A= 0.09000
                                                  PERCENT FUEL= 8.2569
                                                                             PHI= 1.3189
P. ATM
                 15,000
                          15.000
                                   15,000
                                           15,000 15,000 15,000
                                                                      15.000 15.000 15.000
                                                                                                  15,000
                                                                                                           15,000
                                                                                                                    15,000
                                                                                                                              15,000
P. PSIA
                 220.4
                          220.4
                                   220.4
                                             220.4
                                                      220.4
                                                               220.4
                                                                        220.4
                                                                                 220.4
                                                                                          220.4
                                                                                                   220.4
                                                                                                            220.4
                                                                                                                     220.4
                                                                                                                              220.4
                          1400.0
                                   1300.0
                                            1200.0
                                                     1100.0
                                                              1000.0
T, DEG K
                 1500.0
                                                                        900.0
                                                                                 0.008
                                                                                          700.0
                                                                                                   600.0
                                                                                                            500.0
                                                                                                                     400.0
                                                                                                                               300.0
                                   1880.3
                                                                       1160.3
                                                                                 980.3
                 2240.3
                          2060.3
                                            1700.3
                                                     1520.3
                                                              1340.3
T. DEG F
                                                                                          800.3
                                                                                                   620.3
                                                                                                            440.3
                                                                                                                     260.3
                                                                                                                               80.3
RHO, G/CC
               3.3283-3 3.5661-3 3.8404-3 4.1606-3 4.5396-3 5.0038-3 5.6438-3 6.4971-3 7.5196-3 8.8160-3 1.0594-2 1.3246-2 2.1072-2
M. MOL WT
                27,311
                          27.311
                                  27.312
                                            27.312
                                                     27,317
                                                              27.373
                                                                       27.787
                                                                                28.434
                                                                                         28.795
                                                                                                  28.936
                                                                                                           28,978
                                                                                                                     28,986
CP, CAL/IGIIKI
                          0.3385
                                                     0.3395
                0.3403
                                  0.3370
                                            0.3361
                                                              0.3965
                                                                       0.5735
                                                                                0.4975
                                                                                         0.3622
                                                                                                  0.3052
                                                                                                           0.2818
                                                                                                                    0.2711
                                                                                                                             0.3544
                1.2719
                          1.2738
                                                              1.2512
GAMMA (S)
                                  1.2755
                                            1.2766
                                                     1,2755
                                                                       1.2044
                                                                                1,2149
                                                                                         1.2640
                                                                                                  1.3011
                                                                                                           1,3240
                                                                                                                     1,3387
                                                                                                                             1.2097
                                             682.9
                                                              616.5
SON VEL.M/SEC
                 762.1
                           736.8
                                    710.5
                                                      653.5
                                                                        569.5
                                                                                 533.1
                                                                                          505.5
                                                                                                   473.6
                                                                                                            435.8
                                                                                                                     391.9
                                                                                                                              295.4
MOLE FRACTIONS
AR
               0.00806
                         0.00806
                                 0.00806
                                           0.00807
                                                   0.00807
                                                             80800.0
                                                                      0.00821
                                                                               0.00834
                                                                                        0.00836 0.00833
                                                                                                          0.00826
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                        0.00000
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CISI
               0.00000
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                                                                               0.00637
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                                                                                                 0.02503
                                                                                                          0.03458
                                                                                                                   0.04540
                                                                                                                            0.05778
                        0.00000
                                 0.00000
                                                             0.00108
CH4
               0.00000
                                           0.00001
                                                    0.00008
                                                                      0.00862
                                                                               0.01714
                                                                                        0.01828
                                                                                                0.01644
                                                                                                          0.01215
                                                                                                                   0.00656
CO
               0.07610
                         0.07308
                                 0.06941
                                           0.06489
                                                   0.05922
                                                             0.05073
                                                                      0.03149
                                                                               0.00941
                                                                                        0.00145
                                                                                                0.00012
                                                                                                          0.00000
                                                                                                                   0.00000
C02
               0.08601
                        0.08903 0.09271
                                           0.09722 0.10285
                                                             0.11067
                                                                      0.12483
                                                                               0.13478
                                                                                        0.13163 0.12587
                                                                                                          0.11933
                                                                                                                   0.11229
                                                                                                                            0.10433
                                                                     0.05136
H2
               0.03946
                        0.04247 0.04613
                                           0.05061
                                                    0.05598
                                                             0.06061
                                                                               0.02855
                                                                                        0.01161 0.00328
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H20 (L1
               0.00000
                         0.00000
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                                          0.00000 0.00000
                                                             0.00000 0.00000
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               0.11484
                         0.11182
                                 0.10814
                                           0.10365 0.09812
                                                             0.09172 0.08813
                                                                              0.09650
                                                                                        0.11158
                                                                                                 0.12308
                                                                                                          0.13314
                                                                                                                   0.14315
H20
                                                                                                                            0.00182
MH3
               0.00001
                        0.00001
                                 0.00002 0.00003 0.00005
                                                             0.00011
                                                                      0.00018
                                                                              0.00018 0.00015 0.00010
                                                                                                          0.00005
                                                                                                                   0.00002
                                                                                                                            0.00000
N2
               0.67552
                        0.67552 0.67553 0.67554 0.67564
                                                             0.67700 0.68719 0.69871 0.70024 0.69775
                                                                                                          0.69195
                                                                                                                   0.68438
     CASE = 0
                  0/5= 11.1111
                                  F/A= 0.09000
                                                   PERCENT FUEL=
                                                                   8.2569
                                                                             PHI= 1.3189
P, ATM
                20,000
                          20,000
                                  20,000
                                            20.000
                                                     20.000
                                                              20,000
                                                                       20.000
                                                                                20,000 20,000
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P, PSIA
                 293.9
                          293.9
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                                                                                                  233.9
                                                                                                            293.9
                                                                                                                     293.9
                                   2600.0
                                                                                2100.0
T. DEG K
                2800.0
                          2700.0
                                                              2300.0
                                                                       2200.0
                                                                                                  1900.0
                                                                                                           1800.0
                4580.3
                                                              3680.3
                                                                       3500.3
T. DEG F
                          4400.3
                                  4220.3
                                            4040.3
                                                     3860.3
                                                                                3320.3
                                                                                         3140.3
                                                                                                  2960.3
                                                                                                           2780.3
              2.3647-3 2.4574-3 2.5552-3 2.6596-3 2.7718-3 2.8932-3 3.0252-3 3.1695-3 3.3282-3 3.5034-3 3.6981-3 3.9157-3 4.1604-3
RHO, G/CC
                                            27.280
M. MOL WT
                 27,166
                          27,222
                                  27.258
                                                    27,293
                                                              27.301
                                                                       27.306
                                                                                27.309
                                                                                         27.310
                                                                                                  27.311
                                                                                                           27.311
CP, CAL/(G)(K)
                0.4847
                          0.4400
                                  0.4083
                                            0.3871
                                                     0.3732
                                                              0.3642
                                                                       0.3582
                                                                                0.3540
                                                                                         0.3510
                                                                                                  0.3485
                                                                                                           0.3463
                                                                                                                    0.3443
GAMMA (S)
                1.2048
                          1.2183
                                  1.2303
                                            1.2400
                                                     1,2473
                                                              1.2527
                                                                       1.2566
                                                                                1.2596
                                                                                         1.2620
                                                                                                  1.2641
                                                                                                           1.2661
                                                                                                                    1.2680
                                                                                                                             1,2700
SON VEL.M/SEC
                 1016.1
                          1002.3
                                    987.8
                                             972.0
                                                      955.0
                                                               936.7
                                                                        917.5
                                                                                 897.4
                                                                                          876.6
                                                                                                   855.1
                                                                                                            832.9
                                                                                                                     810.1
MOLE FRACTIONS
                0.00802
                        0.00804 0.00805 0.00806 0.00806
                                                             0.00806 0.00806 0.00806
                                                                                                 0.00806
AR
                                                                                       0.00806
                                                                                                         0.00806
                                                                                                                   0.00806
CO
               0.09367
                        0.09205
                                 0.09086
                                          0.08992
                                                    0.08909
                                                             0.08827
                                                                      0.08739
                                                                              0.08641
                                                                                        0.08529
                                                                                                 0.08400
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cno
               0.06758
                        0,06953 0.07093 0.07230 0.07292
                                                             0.07379 0.07469 0.07569
                                                                                        0.07682 0.07811
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                                                             0.00036 0.00021
0.02730 0.02815
Н
               0.00289
                        0.00201 0.00136 0.00090
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                         0.02522 0.02549
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                                          0.12726
                                                             0.12663
                                                                                        0.12399 0.12272
H20
               0.12476
                         0.12626 0.12703
                                                    0.12709
                                                                      0.12595
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NH3
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NO
                0.00187
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                                 0.00061 0.00032
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N2
               0.67100
                         0.67277
                                 0.67390
                                          0.67459
                                                    0.67501
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OH
                0.00411
                         0.00263
                                 0.00161 0.00094
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ADD CIST ADD H20(L) PERCENT FUEL= 9.0909 0/F= 10.0000 F/A= 0.10000 PHI= 1.4654 30.000 P, ATM 30,000 30,000 30.000 30,000 30.000 30,000 30,000 30,000 30,000 30.000 30,000 P, PSIA 440.9 440.9 440.9 440.9 440.9 440.9 440.9 440.9 440.9 440.9 440.9 440.9 1100.0 1000.0 700.0 400.0 T. DEG K 1500.0 1400.0 1300.0 1200.0 900.0 800.0 600.0 500.0 2060.3 1880.3 1700.3 1340.3 800.3 440.3 260.3 T, DEG F 2240.3 1520.3 1160.3 980.3 620.3 RHO, G/CC 6.4899-3 6.9536-3 7.4889-3 8.1152-3 8.8733-3 9.9058-3 1.1353-2 1.3051-2 1.5063-2 1.7640-2 2.1192-2 2.9671-2 4.3049-2 M, MOL WT 27.095 28.840 26.627 26,627 26,629 26.636 26,697 27.948 28.558 28.950 28.982 32,462 35.324 CP, CAL/(G)(K) 0.3459 0.3446 0.3442 0.3495 0.4060 0.6209 0.6667 0.4525 0.3490 0.3039 0.2843 1.1535 0.3411 1.2751 1.3195 GAMMA (S) 1.2766 1.2775 1.2757 1.2536 1.2028 1.1851 1.2265 1.2692 1.3001 1.1753 1,2056 SON VEL.M/SEC 772.8 747.0 720.1 691.3 655.3 607.5 563.3 534.5 506.1 473.3 435.1 347.0 291.8 MOLE FRACTIONS AR 0.00779 0.00779 0.00779 0.00779 0.00781 0.00793 0.00809 0.00814 0.00814 0.00810 0.00802 0.00782 0.00779 0.00000 0.00000 0.09957 0.07441 0.00000 0.00000 0.00002 0.00014 0.09526 0.08982 0.07872 0.08409 CISI 0.00000 0.00000 0.00000 0.01058 0.02643 0.03540 0.04337 0.05425 0.07857 0.08148 0.00125 0.00866 0.08158 0.06196 0.09162 0.10643 0.07656 0.06883 0.00000 0.00000 0.08676 0.08200 0.00000 0.01912 0.02197 0.02230 0.01972 0.01468 CH4 0.00158 0.01912 0.02197 0.02680 0.00639 0.12419 0.12688 0.04436 0.02263 0.00000 0.00000 0.08898 0.10599 ĊO 0.10313 0.00098 0.12310 0.00008 0.00000 0.11720 0.11017 0.00000 C02 0.07086 0.09439 0.06332 0.06755 0.07250 0.00000 0.00898 0.00000 0.11916 0.00251 0.00000 0.13003 H2 0.05980 0.00042 0.00000 0.00001 H201L1 0,00000 0.09861 0.10225 0.09757 0.09277 H20 0.10580 0.14061 0.06436 0.00087 0.00003 0.00005 0.00009 0.00017 0.00026 0.00029 0.00026 0.00021 0.00014 NH3 0.00002 0.00007 0.00001 0.00000 0.65261 0.68173 N2 0.65260 0.65263 0.65279 0.65426 0.66394 0.67760 0.68131 0.67835 0.67177 0.65466 0.65260 CASE= 0 0/F = 10.0000F/A= 0.10000 PERCENT FUEL= 9.0909 PHI= 1.4654 40.000 40.000 40.000 40,000 40,000 P. ATM 40.000 40.000 40,000 40,000 40,000 40,000 40,000 40.000 587.8 587.8 587.8 2500.0 587.8 587.8 537.8 P. PSIA 587.8 587.8 587.8 587.8 587.8 587.8 587.8 1900.0 2300.0 2000.0 1700.0 1600.0 T, DEG K 2800.0 2700.0 2600.0 2400.0 2200.0 2100.0 1800.0 4580.3 2960.3 2420.3 T, DEG F 4400.3 4220.3 4040.3 3860.3 3680.3 3500.3 3320.3 3140.3 2780.3 2600.3 RHO, G/CC 4.6217-3 4.7980-3 4.9861-3 5.1880-3 5.4058-3 5.6419-3 5.8990-3 6.1803-3 6.4895-3 6.8312-3 7.2109-3 7.6351-3 8.1123-3 26.595 0.3896 1.2453 1006.1 M, MOL WT 26.547 26.575 26.607 26.615 26.620 26.623 26.625 26.626 26.626 26,626 26.627 26,627 0.4054 0.3608 1.2620 0.3552 1.2663 889.3 0.3531 CP, CAL/IGI(K) 0.4276 0.3783 0.3705 0.3649 0.3577 0.3512 0.3493 0.3476 1.2557 1.2380 1.2592 1,2735 GAMMA (S) 1.2291 1.2511 1.2643 1.2700 1,2717 SON VEL, M/SEC 1038.2 988.6 951.1 931.2 910.6 821.6 844.9 MOLE FRACTIONS AR 0.00777 0.00778 0.00778 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.12173 0.12092 0.12015 0.11937 0.11854 0.11763 0.11660 0.11542 0.11407 0.11251 0.11070 CO 0.10858 0,05173 0,05274 0.05363 0,05419 0.05537 0.05737 0.05855 002 0.05631 0.05991 0.06147 0.06329 0.06540 0.06790 н 0.00262 0.00183 0.00125 0.00082 0.00053 0.00032 0.00019 0.00011 0.00006 0.00003 0.00001 0.00001 0.00000 H2 0.04158 0.04207 0.04270 0.04344 0.04428 0.04522 0.04628 0.04748 0.04885 0.05042 0.05223 0.05435 0.05684 H20 0.12114 0.12163 0.12168 0.12141 0.12088 0.12013 0.11919 0.11805 0.11673 0.11518 0.11337 0.11125 0.10876 NH3 0.0000,0 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00001 0.00001 0.00001 0.00002 0.00002

NO

N2

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CASE= 0 0 /F= 0.0000 P, ATM 4.0000 4.0000 P, PSIA 58.8 58.8 T, DEG K 2800.0 2700.0 T, DEG F 4580.3 4400.3 RHO, G/CC 5.0133-4 5.2089-4 H, MOL NT 28.796 28.851 CP, CAL/(G)(K) 0.4355 0.4076 GAM/HA (S) 1.2135 1.2227 SON VEL,M/SEC 990.5 975.4	F/A= 0.00000 PERCENT F 4.0000 4.0000 4.0000 58.8 58.8 58.8 2600.0 2500.0 2400.0 4220.3 4040.3 3860.3 5.4167-4 5.6387-4 5.8774-4 28.891 28.919 28.937 0.3848 0.3665 0.3519 1.2319 1.2408 1.2491 960.1 944.4 928.1	4.0000 4.0000 4.0000 4.000 58.8 58.8 58.8 58.8 2300.0 2200.0 2100 0 2000. 3680.3 3500.3 3320.3 3140.	8 58.8 58.8 58.8 58.8 58.8 0.0 0 1900.0 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 4 7.4310-4 7.8440-4 8.3054-4 8.8245-4 3 28.964 28.964 28.964 28.965 0.3021 0.3072 0.3026 0.2982 3 1.2821 1.2877 1.2932 1.2988
MOLE FRACTIONS AR CO 0.00927 0.00929 CO 0.00004 0.00003 CO2 0.0025 0.00027 NO2 0.003532 0.03104 NO2 0.75868 0.76230 O 0.01160 0.00730 O 0.18479 0.18922	0.00930 0.00931 0.00931 0.00002 0.00991 0.00001 0.00028 0.00029 0.00029 0.02691 0.02300 0.01934 0.00004 0.00004 0.00003 0.76544 0.76814 0.77046 0.09508 0.00319 0.00192 0.19293 0.19603 0.19862	0.00932 0.00932 0.00932 0.0093 0.00000 0.00000 0.00000 0.0000 0.00030 0.00030 0.00030 0.0003 0.01599 0.01297 0.01030 0.0079 0.0003 0.00003 0.00003 0.0000 0.77246 0.77416 0.77562 0.7768 0.00111 0.00060 0.00031 0.0001 0.20079 0.20261 0.20412 0.2053	0 0.00000 0.00000 0.00000 0.00000 0 0.00030 0.00030 0.00030 0.00030 8 0.00601 0.00438 0.00308 0.00207 3 0.00002 0.00002 0.00002 0.00002 4 0.77786 0.77869 0.77935 0.77986 5 0.00007 0.00003 0.00001 0.00000
CASE= 0 0/F= 0.0000 P, ATM 4.0000 4.0000 P, PS1A 58.8 58.8 T, DEG K 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 9.4124-4 1.0085-3 M, MOL WT 28.965 28.964 CP, CAL//GIKN 0.2940 0.2898 GAMMA (\$) 1.3044 1.3102 SON VEL,M/SEC 749.4 725.6	F/A= 0.00000 PERCENT F 4.0000 4.0000 4.0000 58.8 58.8 58.8 1300.0 1200.0 1100.0 1880.3 1.700.3 1520.3 1.0861-3 1.700.3 1520.3 28.964 28.964 28.964 0.2856 0.2815 0.2773 1.3161 1.3223 1.3287 700.8 674.9 647.7	UEL= 0.0000 PHI= 0.0000 4.0000 4.0000 4.0000 4.0000 58.8 58.8 58.8 58.8 1000.0 900.0 900.0 700. 1340.3 1160.3 980.3 800. 1,4119-3 1.5688-3 1.7649-3 2.0170- 28.964 28.964 28.964 28.96 0.2730 0.2681 0.2626 0.256 1.3357 1.3440 1.3536 1.364 619.2 589.3 557.5 523.	8 58.8 58.8 58.8 58.8 58.8 600.0 500.0 400.0 300
MOLE FRACTIONS AR CO2 0.00032 0.00030 N0 0.00131 0.00078 N02 0.00001 0.00001 N2 0.78023 0.78050 O2 0.20882 0.20908	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00043 0.00021 0.00009 0.00001 0.00001 0.00001 0.78067 0.78078 0.78084 0.20926 0.20937 0.20943	0.00932 0.00932 0.00932 0.0093 0.00030 0.00030 0.00030 0.0003 0.00004 0.00001 0.00000 0.0000 0.00000 0.00000 0.00000 0.0000 0.78087 0.78089 0.78089 0.7808 0.20947 0.20948 0.20948 0.2094	0 0.00030 0.00030 0.00030 0.00030 0 0.00000 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000 0.00000 9 0.78089 0.78089 0.78089 0.78089

AUU HZUILI	ADD	H20 (L)	
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CASE= C P, ATM P, PSIA I, DEG K I, DEG F RHO, G/CC M, MOL WT CP, CAL/IGI/KI GAMMA (S) SON VEL,M/SEC	0 0/F=100.0000 6.0000 6.0000 88.2 88.2 1500.0 1400.0 2240.3 2060.3 1.4120-3 1.5129-3 28.967 28.967 0.2993 0.2949 1.2974 1.3031 747.4 723.6	F/A= 0.01000 6.0000 6.0000 88.2 88.2 1300.0 1200.0 1880.3 1700.3 1.6293-3 1.7651-3 28.967 28.967 0.2906 0.2863 1.3090 1.3151 698.9 673.0	6.0000 6.0000 88.2 88.3 1100.0 1000.0 1520.3 1340.3 1.9255-3 2.1181- 28.967 28.967 0.2820 0.277 1.3215 1.3285	88.2	6.0000 6.0000 88.2 88.2 700.0 600.0 800.3 620.3	6.0000 6.0000 6.0000 88.2 88.2 88.2 500.0 400.0 300.0 440.3 260.3 80.3 4.2361-3 5.2952-3 7.1599-3 28.967 28.967 29.376 0.2492 0.2448 0.3690 1.3799 1.3893 1.2771 445.0 399.4 329.3
MOLE FRACTIONS AR CO2 H20(L) H20 N0 N02 N2 OH	0.00923 0.00923 0.02088 0.02088 0.00000 0.00000 0.01961 0.01962 0.00120 0.00072 0.00001 0.00001 0.77262 0.77287 0.00002 0.00001 0.17641 0.17666	0.00923 0.0093 0.02088 0.02068 0.00000 0.00000 0.01962 0.01962 0.00039 0.00020 0.09001 0.00001 0.77303 0.77313 0.00000 0.00000 0.17663 0.17693	0.02088 0.02088 0.00000 0.00000 0.01962 0.0196 0.00009 0.00000 0.00001 0.00000 0.77319 0.7732 0.00000 0.00000	0.02088 0.02088 0.00000 0.00000 2 0.01962 0.01962 3 0.00001 0.00000 0 0.00000 0.00000 1 0.77322 0.77323 0 0.00000 0.00000	0.00923 0.00923 0.02088 0.02088 0.00000 0.00000 0.01962 0.01962 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.00000 0.00000 0.17703 0.17703	0.02088 0.02088 0.02088 0.00000 0.00000 0.01333 0.01962 0.01962 0.00570 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.00000 0.00000 0.00000
CASE= C P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/IG)IK I GAMMA ISI SON VEL,M/SEC	0 0/F=100.0000 10.000 10.000 147.0 147.0 2800.0 2700.0 4580.3 4400.3 1.2524-3 1.3014-3 28.774 28.832 0.4477 0.4204 1.2077 1.2160 988.5 973.0	F/A= 0.01000 10.000 10.000 147.0 147.0 2600.0 2500.0 420.3 4040.3 1.3534-3 1.4091-3 28.875 28.906 0.3795 0.3785 1.2245 1.2330 957.5 941.6	10.000 10.000 147.0 147.0 2400.0 2300.0 3860.3 3680.3 1.4689-3 1.5335- 28.928 28.948 0.3630 0.3500 1.2412 1.248	147.0 147.0 2200.0 2100.0 3 3500.3 3320.3 3 1.6038-3 1.6805-3 2 28.952 28.958 5 0.3404 0.3320 9 1.2560 1.2627	,5 10.000 10,000 147,0 147,0 2000.0 1900.0 3140.3 29.0.3 1.7648-3 1.8578-3 28.962 28.965 0.3250 0.3189 1.2689 1.269 853.6 833.9	147.0 147.0 147.0 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 1.9611-3 2.0765-3 2.2063-3 28.966 28.967 28.967 0.3134 0.3084 0.3037 1.2806 1.2862 1.2918
MOLE FRACTIONS AR CO CO2 H HO2 H2 H2 H20 N0 N0 N0 00 0	0.00917 0.00919 0.00222 0.00148 0.01852 0.01930 0.00042 0.00025 0.00003 0.00002 0.00027 0.0019 0.01551 0.01642 0.03230 0.02835 0.00005 0.00005 0.75192 0.75544 0.00674 0.00453 0.00697 0.00557 0.15588 0.15921	0.00014 0.00007 0.00002 0.00003 0.00013 0.00008 0.01719 0.01781 0.02456 0.02098 0.00005 0.00005 0.75847 0.76109	0.02052 0.02064 0.00004 0.0000 0.00001 0.0000 0.00005 0.0000 0.01832 0.0187 0.01765 0.01466 0.00005 0.0006 0.76333 0.7652 0.00111 0.0006 0.000242 0.0017	8 0.0009 0.0005 8 0.02078 0.02083 2 0.00001 0.00001 1 0.00001 0.00001 1 0.01900 0.01922 0 0.01185 0.00941 4 0.0003 0.76828 4 0.00035 0.0018 2 0.00118 0.00078	0.00923 0.00923 0.00002 0.00001 0.02086 0.02087 0.00000 0.00000 0.00000 0.00000 0.01937 0.01947 0.00729 0.00550 0.00003 0.00003 0.76944 0.77040 0.00099 0.00004 0.00049 0.00030 0.17317 0.17415	0.00000 0.00000 0.00000 0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.01954 0.01958 0.01960 0.00401 0.00281 0.00189 0.00003 0.00002 0.00002 0.77118 0.77180 0.77227 0.00002 0.00001 0.00000 0.00017 0.00009 0.00004

CASE= 0 0/F=50.0000 P, ATM 15.000 15.00 P, PSIA 220.4 220. T, DEG K 1500.0 1400. T, DEG F 2240.3 2060. RHO, G/CC 3.5304-3 3.7826- M, MOL WT 28.970 28.97 CP, CAL/(G)(K) 0.3043 0.299 GAMMA (S) 1.2911 1.296 SON VEL,M/SEC 745.5 721.	U 15.000 15.000 15.00 4 220.4 220.4 220 0 1300.0 1200.0 1100 3 1880.3 1700.3 1520 3 4.0736-3 4.4130-3 4.8120 0 28.970 28.970 28.9 0 0.2955 0.2911 0.281 6 1.3023 1.3083 1.31	15.000 15.000 15.000 15.000 15 4 220.4 220.4 220.4 220.4 22 0 1000.0 900.0 800.0 70 3 1340.3 1160.3 980.3 80 3 5.2956-3 5.8840-3 6.6195-3 7.566 0 28.970 28.970 28.970 28.970 28.970 70 0.2818 0.2764 0.2704 0	000 15.000 15.000 15.000 15.000 0.4 220.4 220.4 220.4 220.4 0.0 600.0 500.0 400.0 300.0 0.3 620.3 440.3 260.3 80.3 2-3 8.261-3 1.0591-2 1.3239-2 1.8323-2 969 28.970 28.970 28.970 30.071 642 0.2575 0.2522 0.2474 0.3043 508 1.3623 1.3737 +.3837 1.3037 0.9 484.3 444.0 398.6 328.8
MOLE FRACTIONS AR C02 0.04106 0.0410 H20 0.03886 0.0388 NO 0.00002 0.0000 N02 0.00002 0.0000 N2 0.76517 0.7653 OH 0.00002 0.14465 0.1448	06 0.04106 0.04106 0.04106 00 0.00000 0.00000 0.0000 06 0.03887 0.03887 0.038 5 0.00036 0.00018 0.000 01 0.00001 0.00001 0.000 10 0.76554 0.76563 0.765 01 0.00000 0.00000 0.000	0.04106 0.04106 0.04106 0.04106 0.04 0.06000 0.00000 0.00000 0.00 0.00000 0.00000 0.00000 0.00 0.00000 0.00000 0.00000 0.00 0.00000 0.00000 0.00000 0.00 0.00000 0.00000 0.06 0.00000 0.00000 0.06 0.00000 0.00	106 0.04106 0.04106 0.04106 0.04106 000 0.00000 0.00000 0.00000 0.03664 1887 0.03887 0.03887 0.00223 1000 0.00000 0.00000 0.00000 0.00000 1000 0.00000 0.00000 0.00000 0.00000 571 0.76572 0.76572 0.76572 0.0000 000 0.00000 0.00000 0.00000 0.00000
CASE= 0 0/F= 50.0000 P, ATM 20.000 20.00 P, PSIA 293:9 293 T, DEG K 2800.0 2700. T, DEG F 4880.3 4400. RHO, G/CC 2.5055-3 2.6033 M, MOL WT 28.783 28.83 CP, CAL/(G K) 0.4495 0.422 GAMMA (S) 1.2057 1.213 SON VEL, M/SEC 987.5 972.	00 20.000 20.000 20.0 9 293.9 293.9 293.9 0 2600.0 2500.0 2400 3 4220.3 4040.3 3860 3 2.7072-3 2.8185-3 2.9381, 99 28.880 28.910 28.9 10.4002 0.3817 0.36 80 1.2221 1.2302 1.23	20.000 20.000 20.000 20.000 20 9 293.9 293.9 293.9 29 0 2300.0 2200.0 2100.0 20 3 3680.3 3500.3 3320.3 314 33 3.0673-3 3.2078-3 3.3613-3 3.52 ² 11 28.945 28.955 28.961 28 0.0345 0.3446 0.3365 0.346 10 1.2453 1.2520 1.2582 1.2	000 20.000 20.000 20.000 20.000 03.9 293.9 293.9 293.9 293.9 00.0 1900.0 1800.0 1700.0 1600.0 0.3 29.0.3 2780.3 2600.3 2420.3 88-3 3.7159-3 3.9225-3 4.1534-3 4.4130-3 965 28.967 28.968 28.969 28.969 1296 0.3237 0.3183 0.3134 0.3087 1641 1.2697 1.2751 1.2804 1.2857 11.9 832.1 811.6 790.4 768.4
MOLE FRACTIONS AR CO 0.00908 0.0091 CO2 0.03730 0.038 H 0.00039 0.0002 H2 0.00004 0.0002 H2 0.0004 0.0003 H20 0.03382 0.0344 N0 0.02910 0.0256 N02 0.0006 0.0006 N2 0.74620 0.7447 O 0.0083 0.0084 OH 0.0083 0.0086 O2 0.12750 0.1306	02 0.00147 0.00089 0.000 05 0.03947 0.04009 0.040 02 0.00012 0.00006 0.000 03 0.00002 0.00002 0.000 09 0.03595 0.03673 0.037 01 0.02209 0.01887 0.015 06 0.00006 0.00005 0.000 07 0.75227 0.75467 0.756 09 0.00188 0.00118 0.000 00 0.00502 0.00377 0.002	61 0.00028 0.00015 0.00007 0.01 91 0.04075 0.04090 0.04098 0.0 93 0.00001 0.00001 0.00000 0.0 92 0.00001 0.00001 0.00001 0.0 98 0.0005 0.00003 0.00001 0.0 98 0.01344 0.010847 0.0 0.0 99 0.0005 0.00005 0.00044 0.0 90 0.05848 0.75597 0.76123 0.7 90 0.00045 0.00022 0.00012 0.00 90 0.00055 0.00034 0.00088 0.0	1003 0.00001 0.00000 0

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P, ATM 30.000 P, PSIA 440.9 T, DEG K 1500.0 T, DEG F 2240.3	33.3333 F/A= 0.03000 30.000 30.000 30.000 440.9 440.9 440.9 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 7.5659-3 8.1479-3 8.8269-3 28.972 28.972 28.972 0.3047 0.3002 0.2957 1.2905 1.2961 1.3020 720.1 695.4 669.6	PERCENT FUEL= 2.9126 30.000 30.000 30.000 440.9 440.9 440.5 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 9.6293-3 1.0592-2 1.1769-2 28.972 28.972 28.972 0.2910 0.2860 0.2804 1.3084 1.3154 1.3238 642.7 614.4 584.3	9 440.9 440.9 800.0 700.0 8 980.3 800.3 2 1.3240-2 1.5132-2 1 2 28.972 28.972 0.2742 0.2677 3 1.3336 1.3445	30,000 30,000 30,000 30,000 440,9 440,9 440,9 440,9 600,0 500,0 400,0 300,0 620,3 440,3 260,3 80,3 7,654-2 2,1184-2 2,6480-2 3,7428-2 28,972 28,972 28,972 30,712 0,2612 0,2551 0,2499 0,2888 1,3561 1,3678 1,3784 1,3022 483,2 443,0 397,8 325,2
MOLE FRACTIONS AR 0.00905 C02 0.06086 H20(L) 0.00000 H20 0.05773 N0 0.00095 N02 0.00002 N2 0.75786 OH 0.00002 02 0.11350		0.00905 0.00905 0.00905 0.06086 0.06086 0.06086 0.00000 0.00000 0.00000 0.05774 0.05774 0.05777 0.00007 0.00003 0.00000 0.00001 0.00001 0.00000 0.75831 0.75833 0.7583 0.00000 0.00000 0.00000 0.11396 0.11398 0.11400	0 0.06086 0.06086 0 0.00000 0.00000 1 0.05774 0.05774 0 0.0000 0.00000 0 0.00000 0.00000 1 0.75835 0.75835 0 0.00000 0.00000	0.00905 0.00905 0.00905 0.00905 0.06086 0.06086 0.06086 0.06086 0.00000 0.00000 0.00000 0.05665 0.05774 0.05774 0.05774 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.75835 0.75835 0.75835 0.75835 0.00000 0.00000 0.00000 0.00000 0.11400 0.11400 0.11400 0.11400
P, ATM 40.000 P, PSIA 587.8 T, DEG K 2800.0 T, DEG F 4580.3	33.3333 F/A= 0.03000 40.000 40.000 40.000 587.8 587.8 587.8 2700.0 2600.0 2500.0 4400.3 420.3 4040.3 5.2089-3 5.4164-3 5.6384-3 28.851 28.889 28.917 0.4210 0.3997 0.3823 1.2133 1.2212 1.2289 971.6 955.9 939.9	PERCENT FUEL= 2.9126 40.000 40.000 40.000 587.8 587.8 587.8 2400.0 2300.0 2200.0 3860.3 3680.3 3500.5 5.8773-3 6.1356-3 6.4165-5 28.936 28.950 28.956 0.3682 0.3568 0.3476 1.2361 1.2428 1.2488 923.3 906.1 888.3	8 587.8 587.8 2100.0 2000.0 3 3320.3 3140.3 3 6.7233-3 7.0604-3 7 8 28.964 28.968 0 0.3400 0.3336 6 1.2547 1.2600	40,000 40,000 40,000 40,000 587.8 587.8 587.8 587.8 1900.0 1800.0 1700.0 1600.0 29.0.3 2780.3 2600.3 2420.3 4325-3 7.8458-3 8.3075-3 8.8268-3 28.970 28.971 28.972 28.972 0.3279 0.3228 0.3181 0.3135 1.2652 1.2702 1.2751 1.2801 830.6 810.0 788.7 766.7
MOLE FRACTIONS AR 0.00900 C0 0.00422 C02 0.05527 H02 0.00005 H2 0.00058 H20 0.05259 N0 0.02562 N02 0.00007 N2 0.74098 0 0.00269 OH 0.00951	0.00278 0.00176 0.00106 0.05782 0.05893 0.05968 0.00018 0.00010 0.00005 0.00004 0.00003 0.0003 0.00039 0.00026 0.00016 0.05381 0.05481 0.05560 0.02244 0.01943 0.01659 0.00007 0.00006 0.00006 0.74393 0.74644 0.74658	0.00904 0.00905 0.00905 0.00601 0.00033 0.00017 0.06017 0.06048 0.06066 0.00002 0.00001 0.00000 0.00002 0.00002 0.0000 0.05621 0.05668 0.05707 0.01396 0.01156 0.00938 0.00006 0.00005 0.00000 0.75040 0.75196 0.7532 0.00044 0.00026 0.00017 0.00027 0.00189 0.00127 0.10628 0.10767 0.1089	7 0.00008 0.00004 0.06076 0.06081 0.00000 0.00000 1.000001 0.00001 3.000002 0.00001 3.00002 0.00001 3.00002 0.00578 0.00746 0.0578 0.00005 0.00004 7.075439 0.75532 0.00007 0.00004 9.000085 0.00054	0.00905 0.00905 0.00905 0.00905 0.00002 0.00001 0.00000 0.00000 0.06084 0.06085 0.06085 0.06086 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.05757 0.05764 0.05769 0.05772 0.00436 0.00318 0.00224 0.00150 0.05004 0.00000 0.00000 0.00000 0.00004 0.00003 0.0003 0.00003 0.75609 0.75671 0.75721 0.75758 0.00002 0.00001 0.00000 0.00000 0.00002 0.00001 0.00000 0.00000 0.00003 0.00001 0.00000 0.00000 0.00003 0.00001 0.00000 0.00000

P, ATM 50 P, PSIA 7 T, DEG K 15 T, DEG F 22 RHG, G/CC 1.17 M, MOL WT 28 CP, CAL/(G) #K1 0. GAMMA (S) 1.	0/F= 25.0000 0.000 50.000 734.8 734.8 500.0 1400.0 240.3 2060.3 770-2 12611-2 8.975 28.975 .3138 0.3094 .2798 1.2848 742.2 718.5	F/A= 0.04000 50.000 50.000 734.8 734.8 1300.0 1200.0 1880.3 1700.3 1.3581-2 1.4713-2 28.975 28.975 0.3049 0.3002 1.2902 1.2960 693.8 668.0	PERCENT F 50.000 734.8 1100.0 1520.3 1.6050-2 28.975 0.2954 1.3024 641.2	50.000 734.8 1000.0 1340.3	50.000 734.8 900.0 1160.3	HI = 0.586 50.000 734.8 800.0 980.3 2.2069-2 28.974 0.2779 1.3276 552.1	50.000 734.8 700.0 800.3	50.000 734.8 600.0 620.3 2.9425-2 28.974 0.2644 1.3503 482.2	50.000 734.8 500.0 440.3 3.5310-2 28.974 0.2580 1.3622 442.1	50.000 734.8 400.0 260.3 4.5539-2 29.894 0.7310 1.2199 368.4	50.000 734.8 300.0 80.3 6.3664-2 31.344 0.2877 1.2905 320.5
CO2 0.0 H2D1L1 0.0 H2O 0.0 NO 0.0 NO 0.0 NO2 0.0 N2 0.1	00897 0.00897 008027 0.08027 00000 0.00000 07624 0.07625 00081 0.00048 00002 0.00002 75071 0.75087 00002 0.00001 08296 0.08313	0.00897 0.00P97 0.08027 0.08027 0.00000 0.00000 0.07625 0.07625 0.00027 0.00013 0.00001 0.00001 0.75098 0.75105 0.00000 0.00000 0.08324 0.08331	0.00897 0.08027 0.00000 0.07625 0.00006 0.00001 0.75109 0.00000 0.08335	0.00897 0.08027 0.00000 0.07625 0.00002 0.00001 0.75111 0.00000 0.08337	0.00897 0.08027 0.00000 0.07625 0.00001 0.00000 0.75111 0.00000 0.08338	0.00897 0.08027 0.00000 0.07625 0.00000 0.00000 0.75112 0.00000 0.08339	0.00697 0.08027 0.00000 0.07625 0.00000 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.00000 0.07625 0.00000 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.00000 0.07625 0.00000 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.03076 0.04549 0.00000 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.07561 0.00064 0.00000 0.00000 0.75112 0.00000 0.08339
P, PSIA T, DEG K 26 T, DEG F 46 RHO, G/CC 5.9 M, MOL WT 27 CP, CAL/(G)(K) I GAMMA (S)	0/F= 20.0000 .5000 0.5000 7.3 7.3 800.0 2700.0 580.3 4400.3 952-5 6.3023-5 7.549 27.926 .0343 0.9169 .1380 1.1413 980.7 957.8	F/A= 0.05000 0.5000 0.5000 7.3 7.3 2600.0 2500.0 4220.3 4040.3 6.6176-5 6.9419-5 28.237 28.482 0.8009 0.6901 1.1471 1.1562 937.1 918.6	PERCENT F 0.5000 7.3 2400.0 3860.3 7.2772-5 28.663 0.5900 1.1691 902.2	0.5000 7.3 2300.0 3680.3	0.5000 7.3 2200.0 3500.3	PHI= 0.732 0.5000 7.3 2100.0 3320.3 8.3911-5 28.919 0.3988 1.2207 858.5	0.5000 7.3 2000.0 3140.3	0.5000 7.3 1900.0 2930.3 9.2882-5 28.962 0.3507 1.2472 824.8	0.5000 7.3 1800.0 2780.3 9.8068-5 28.970 0.3386 1.2561 805.5	0.5000 7.3 1700.0 2600.3 1.0385-4 28.974 0.3303 1.2630 785.0	0.5000 7.3 1600.0 2420.3 1.1035-4 28.975 0.3241 1.2688 763.2
C0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0	00844 0.00856 04465 0.03529 04978 0.06043 01056 0.00636 00001 0.00001 0043 0.00634 06443 0.07200 01861 0.01615 69805 0.70897 01803 0.01191 02324 0.01893	0.00866 0.00873 0.02609 0.01791 0.07070 0.07972 0.00363 0.00195 0.00001 0.00001 0.00452 0.00305 0.07824 0.03105 0.01377 0.01156 0.71814 0.72553 0.00759 0.00467 0.01486 0.01128 0.05380 0.05247	0.00879 0.01135 0.08689 0.00098 0.00001 0.00194 0.08682 0.00959 0.73117 0.00276 0.00828 0.05141	0.00882 0.00663 0.09205 0.00046 0.00000 0.00116 0.08946 0.00785 0.73527 0.00157 0.00589	0.00885 0.00356 0.09539 0.00020 0.00000 0.00065 0.09129 0.00634 0.73811 0.00086 0.00404 0.05070	0.00886 0.00176 0.09736 0.00008 0.00000 0.00034 0.09251 0.00503 0.74003 0.0044 0.00267 0.05091	0.00887 0.00080 0.09842 0.00003 0.00000 0.00017 0.09329 0.00390 0.74131 0.00021 0.00021 0.00169	0.00888 0.00033 0.09894 0.00001 0.00000 0.00008 0.09378 0.00294 0.74218 0.00010 0.00101 0.05176	0.00888 0.00012 0.09917 0.00000 0.00003 0.09407 0.00215 0.74277 0.00004 0.00057 0.05218	0.00888 0.00004 0.09927 0.00000 0.00000 0.00001 0.09424 0.00151 0.74319 0.00001 0.00030 0.05253	0.00888 0.00001 0.09931 0.00000 0.00000 0.00000 0.09433 0.00102 0.74348 0.00000 0.000015 0.05281

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CASE= 0 0/F= 16.6667
P, ATM 1.0000 1.0000
P, PSIA 14.7 14.7
                                                  F/A= 0.06000 PERCENT FUEL= 5.6604 PHI= 0.8792
                                                 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 14.7 14.7 14.7 14.7 14.7 14.7
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T, DEG K
T, DEG F
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                                      1400.0
                                                  1300.0
                                                                1200.0
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GAMMA (S) 1,2697
SON VEL,M/SEC 739.2
                                     1.2746
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                                     715.5
                                                    690.9
                                                                  665.2
                                                                               638.4
                                                                                            610.4
                                                                                                          580.9
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MOLE ERACTIONS
AR
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                     0.11801 0.11801 0.11802 0.11802 0.11802 0.11802
C02
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                   0.00000 0.08036
H20+L+
                                                                                                                                                                        0.11224 0.03188
H20
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NO
                    0.73684 0.73694 0.73700 0.73703 0.73705 0.73706 0.73707 0.73707 0.73707 0.73707 0.73707
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N2
0H
                      0.00005 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
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                       0.02365 0.02374 0.02381 0.02384 0.02386 0.02388 0.02388 0.02388 0.02388 0.02388
                                                                                                                                                                        0.02388 0.02388
                                                  F/A= 0.06000 PERCENT FUEL= 5.6604 PHI= 0.8792
     CASE= 0 0/F= 16.6667
P, ATM 1,5000 1,5000
                                                 1.5000 1.5000 1.5000 1.5000 1.5000 1.5000 1.5000
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P, ATM
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                                   0.8032
                                                                            1,1757
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GAMMA (S) 1.1444
SON VEL,M/SEC 978.5
                                                  1.1544
                                                                                           1,1907
                                                                                                        1.2072
                                                                                                                     1,2230
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                                                                1.1635
                                       957.4
                                                    937.9
                                                                 920.1
                                                                             903.9
                                                                                            888.9
                                                                                                        874.3
                                                                                                                     859.1
                                                                                                                                    842.6
                                                                                                                                                 824.5
                                                                                                                                                              804.8
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MOLE FRACTIONS
                                                 0,00861 0,00867 0.00872 0.00875 0.00877 0.00878 0.00879 0.00880 0.00880 0.00880 0.00880
AR 0.00845 0.00854
                     0.04482 0.03501
                                                  0.02580 0.01779
                                                                           0.01139 0.00673 0.00365 0.00182 0.00083
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0.0
C02
                     0.06850
                                   0.07952
                                                  0.08974
                                                              0.09855
                                                                            0.10555 0.11064 0.11400 0.11600 0.11709
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H2
                   0.00832 0.00622
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H20
                      0.08727
                                   0.09370
                                                 0.09892
                                                              0.10300 0.10606 0.10827 0.10978 0.11077 0.11139 0.11177 0.11199
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NO
                      0.01476
                                   6.01237
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                       0.70035
                                    0.70909 0.71646
                                                              0.72242 + 0.72701 0.73035
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                       0.00824
                                    0.00527 0.00325
                                                             0.00194 0.00112 0.00062
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                0.01829 0.01436 0.01093 0.00809 0.00582 0.00407 0.00276 0.00181 0.00114 0.00069 0.00039 0.00021 0.00010 0.03493 0.03228 0.02956 0.02709 0.02512 0.02376 0.02301 0.02272 0.02274 0.02291 0.02314 0.02335 0.02352
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ADD H201L1

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CASE= 0 0/F= 14.6540
P, ATM 2.0000 2.0000
P, PSIA 29.4 29.4
                                                                     F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1.0000
                                                2.0000
                                                                     2.0000
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                                                                                                                                                                                    700.0
 T, DEG K
                                 1500.0
                                                  1400.0
                                                                     1300.0
                                                                                        1200.0
                                                                                                         1100.0
                                                                                                                             1000.0
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                                                                                    1700.3
 T, DEG F
                             2240.3
                                                2060.3
                                                                  1880.3
                                                                                                         1520.3
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                              4.7089-4 5.0454-4 5.4336-4 5.8864-4 6.4215-4 7.0637-4 7.8485-4 8.8296-4 1.0091-3 1.1773-3 1.4127-3 1.7559-3 2.6494-3
RHO, G/CC
                                                 28,981
                                                                                        28.981
M. MOL WT 28.980
                                                                     28.981
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CP, CAL/(G)(K) 0.3271
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                                                  0.3219
                                                                     0.3171
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GAMMA (S) 1.2657
                                                                     1.2760
                                                                                        1.2814
                                                                                                          1.2875
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                                                                                                                                                                                1,3234
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                                                                                                                                                                                                                       1.3477
                                                                                                                                                                                                                                          1,3600
 SON VEL, M/SEC
                                                   714.5
                                                                                                                              609.4
                              738.0
                                                                       689.8
                                                                                          664.2
                                                                                                         637.4
                                                                                                                                                 580.0
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                                                                                                                                                                                    515.5
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MOLE FRACTIONS
 AR
                            0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.0087
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                           0.13308 0.13313 0.13315 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316
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 H20 (1.1
 H20
                           0.12664 0.12666 0.12667 0.12668 0.12668
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                             0.00002 0.00001 0.00000 0.00000 0.00000
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                              0.73138 0.73141 0.73142 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143
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02
                               0.00004 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000
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          CASE= 0 0/F= 14.6540
                                                                                                      PERCENT FUEL= 6.3882
                                                                                                                                                      PHI= 1.0000
F/A= 0.06824
                                                                                                                                                                                                                   28.966 28.974 28.978
0.3514 0.3407 0.3328
1.2463 1.2541 1.2605
CP, CAL/(G)(K) 0.8322
                                                    0.7487
                                                                      0.6773
                                                                                        0.6100
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GAMMA (S) 1.1489
SON VEL,M/SEC 979.7
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959.3
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                                                                     1.1587
                                                                                    1.1665
                                                                                                         1.1762
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                                                                       940.2
                                                                                          922.2
                                                                                                         905.1
                                                                                                                          888.7
                                                                                                                                               872.5
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MOLE FRACTIONS
AR 0,00840 0,00847 0,00854 0,00859 0,00863 0,00867 0,00869 0,00871 0,00872 0,00872 0,00873 0,00873 0,00873
                           0.04920
                                                 0.03974 0.03093 0.02314 0.01662 0.01143 0.00751 0.00469 0.00277 0.00154
                                                                                                                                                                                                                   0.00080
 CO
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                      0.07884
                                                 0.08947 0.09928 0.10787 0.11503 0.12071 0.12499 0.12806
                                                                                                                                                                                0.13014 0.13148
002
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                           0.00455 0.00278 0.00164 0.00032 0.00050
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0.00937 0.00729 0.00554 0.00411 0.00297
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0.00209 0.00142 0.00093
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                               0.10297 0.10880 0.11353
                                                                                    0.11727 0.12014
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                               0.1097 0.10880 0.11733 0.1727 0.12014 0.1221 0.12481 0.12481 0.12481 0.12481 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.1250 0.
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ADD H201L1 ADD CISI

CASE= 0 0/F= P, ATM 4.0000 P, PSIA 58.8 T, DEG K 1500.0 T, DEG F 2240.3 RHO, GCC 9.3710-4 M, MOL NT 28.836 CP, CAL/IG)(KI 0.3262 GAMMA (S) 1.2679 SON VEL,M/SEC 740.5	28.836 28.836	7000 PERCENT F 4.0000 4.0000 58.8 58.8 1200.0 1100.0 1700.3 1520.3 1714-3 1.2779-3 28.836 28.836 0.3146 0.3101 1.2804 1.2857 665.6 638.6	UEL= 6.5421 4.0000 4.00 58.8 58 1000.0 900 1340.3 1160 1.4057-3 1.5618 28.836 28.8 0.3052 0.29 1.2916 1.29 610.3 580	.8 59.8 58.8 .0 800.0 700.0 .3 980.3 800.3 -3 1.7571-3 2.0091-3 36 28.836 28.851 94 0.2929 0.2983 90 1.3080 1.3085	4.0000 4.0000 58.8 58.5 600.0 500.6 620.3 440.2 2.3503-3 2.8246-7 0.2931 0.271 1.3166 1.341 476.5 438.3	58.8 58.8 40.0 300
MOLE FRACTIONS AR 0.00867 C(S) 0.00000 CH4 0.00000 C0 0.0727 C02 0.12840 H2 0.00278 H20(L) 0.00000 H20 0.12630 N13 0.00000 N2 0.72657	0,00000 0,00000 0 0,00000 0,00000 0 0,00692 0,00647 0 0,12876 0,12921 0 0,00313 0,00358 0 0,00000 0,00000 0 0,12595 0,1255,0 0,00000 0,00000 0	0.00667 0.00867 0.00000 0.00000 0.00000 0.00000 0.00590 0.00517 0.12978 0.13050 0.00415 0.00488 0.00000 0.00000 0.12493 0.12420 0.00000 0.00000 0.72657 0.72657	0.00867 0.008 0.60000 0.000 0.00000 0.000 0.00427 0.003 0.13140 0.132 0.00578 0.006 0.00000 0.000 0.12330 0.122 0.00000 0.000 0.72657 0.726	00 0.00000 0.00000 00 0.00000 0.00025 21 0.00207 0.00095 47 0.13360 0.13454 84 0.00795 0.00805 00 0.00000 0.00000 24 0.12111 0.12056 00 0.00001 0.00002	0.00000 0.00000 0.00160 0.00235 0.00014 0.0000 0.13438 0.13396 0.00352 0.00066	0 0,00000 0.00502 0 0,00251 0.00000 0 0,00000 0.00000 0 1,1385 0.13066 0 0,00005 0.00000 0 0,00000 0.12151 0 0,0000 0.00000 0 0,12465 0.00757 0 0,00001 0.00000
P, ATM 6.0000 P, PSIA 88.2 T, DEG K 2800.0 T, DEG F 4580.3	88,2 88,2 2700.0 2600.0 4400.3 4220.3 7.6451-4 7.9883-4 8. 28,230 28,405	7000 PERCENT F 6.0000 6.0000 88.2 88.2 2500.0 2400.0 4040.3 3860.3 33490-4 8.7301-4 28.546 28.654 0.5576 0.5039 1.1758 1.1867 925.3 909.0	6.0000 6.00 88.2 88 2300.0 2200 3680.3 3500	.2 88.2 88.2 .0 2100.0 2000.0 .3 3320.3 3140.3 -4 1.0033-3 1.0540-3 86 28.816 28.829 12 0.3754 0.3529 56 1.2325 1.2458	6.0000 6.000 38.2 88.1 1900.0 1800.(2960.3 2760.1 1.096-3 1.1713- 28.834 28.83 0.3419 0.336 1.2535 1.2536 828.7 808.0	88.2 88.2 1700.0 1600.0 3 2600.3 2402.0 3 1,2403-3 1,3178-3 5 28,836 28,836 0,3327 0,3294 0 1,2614 1,2645
MOLE FRACTIONS AR 0.00843 C0 0.04514 C02 0.08670 H 0.00303 H02 0.00001 H2 0.00834 H20 0.10982 N0 0.00928 N2 0.70137 0 0.00259 OH 0.01150 02 0.01379	0.03669 0.02909 0 0.09613 0.10455 0 0.00187 0.00112 0 0.00080 0.00000 0 0.00660 0.00516 0 0.11457 0.11839 0 0.00712 0.00525 0.70773 0.71308 0 0.00152 0.00084 0 0.00552 0.00088 0	0.00859 0.00862 0.02260 0.01736 0.11171 0.11747 0.00065 0.00036 0.00000 0.00000 0.00401 0.00312 0.12138 0.12362 0.00369 0.00243 0.71741 0.72078 0.00043 0.00020 0.00415 0.00268	0.00864 0.008 0.01342 0.010 0.12178 0.124 0.00020 0.000 0.00000 0.000 0.00249 0.002 0.12523 0.126 0.00147 0.000 0.72326 0.724 0.00009 0.000 0.00163 0.000	75 0.0924 0.00852 69 0.12635 0.12712 10 0.00005 0.00003 0.00000 0.00000 08 0.00189 0.00187 28 0.12685 0.12706 79 0.00036 0.00014 93 0.72588 0.72632 0.00001 0.00000 90 0.00025 0.00020	0.00001 0.0000 0.00000 0.00000 0.0195 0.0020 0.12707 0.1269 0.00004 0.0000 0.72649 0.7265 0.00000 0.00000 0.00008 0.0000	30 0.0779 0.00756 30 0.12789 0.12812 10.00000 0.00000 0.00027 0.00250 70 0.12680 0.12658 10.00000 0.00000 10.72656 0.72657 0.00000 0.00000 30.00001 0.00000 30.000001 0.00000

ADD C(S) ADD H20(L)

P, PSIA 147.0 T, DEG K 1500.0 T, DEG F 2240.3 RH0, G/CC 2.2786-3 2. M, MOL NT 28.046 CP, CAL/(G)(K) 0.3338	10.000 10.000 10.000 147.0 147.0 147.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	PERCENT FUEL= 7.4074 10.000 10.000 10.00 147.0 147.0 147.0 147. 1100.0 1000.0 900. 1520.3 1340.3 1160. 3.1072-3 3.4183-3 3.8056- 28.046 28.049 28.10 0.3247 0.3258 0.377 1.2793 1.2798 1.256 645.9 615.9 578.	147.0 147.0 800.0 700.0 3 980.3 800.3 4.3322-3 5.0096-3 5.28.439 28.775 8 0.4444 0.3587 0 1,2333 1,2691	10.000 10.000 147.0 147.0 600.0 500.0 620.3 440.3 28.929 28.975 0.3041 0.2786 1.3039 1.3292 474.2 436.7	10.000 10.000 147.0 147.0 400.0 300.0 260.3 80.3 88303-3 1.3753-2 28.983 33.857 0.2675 0.3684 1.3449 1.2135 392.8 299.0
C151 0.00000 0 CH4 0.00000 0 C0 0.04458 0 C02 0.10480 0 H2 0.02015 0 H20:L: 0.00000 0 H20 0.12200 0	0.00836 0.00836 0.00836 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.04258 0.04013 0.03707 0.10679 0.10925 0.11230 0.02214 0.02460 0.02764 0.00000 0.00000 0.00000 0.12001 0.11755 0.11450 0.00000 0.00000 0.00000 0.12001 0.70012 0.70012	0.00836 0.00836 0.0083 0.00000 0.00000 0.0000 0.00000 0.00005 0.0010 0.03327 0.02848 0.0214 0.11611 0.12086 0.1272 0.03143 0.03601 0.0392 0.00000 0.00000 0.0000 0.11070 0.10601 0.1010 0.00002 0.00003 0.0000 0.70012 0.70019 0.7015	0 0.00000 0.00000 1 0.00094 0.01295 1 0.00903 0.00174 5 0.13549 0.13857 7 0.02865 0.1272 0 0.00000 0.00000 0.10142 0.10770 8 0.00012 0.00012	0.00443 0.01304 0.01342 0.00981 0.00015 0.00000 0.13540 0.12945 0.00366 0.00060 0.00000 0.00000 0.11535 0.12466 0.00008 0.00004	0.00844 0.00836 0.02234 0.03236 0.00516 0.00000 0.00000 0.00000 0.12342 0.11701 0.00004 0.00000 0.13323 0.00287 0.00001 0.00000 0.70735 0.70012
P, ATM 15.000 P, PSIA 220.4 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.8128-3 1. M, MOL WT 27.768	2.5000 F/A= 0.08000 15.000 15.000 15.000 220.4 220.4 220.4 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 8873-3 1,9650-3 2,0468-3 27.876 27.949 27.993 0.5131 0.4542 0.4111 1.1914 1.2070 1.2225 979.5 966.2 952.8	PERCENT FUEL= 7,4074 15,000 15,000 15,000 220,4 220,4 220, 2400.0 2300.0 2200, 3860.3 3680.3 3500, 2,1340-3 2,2279-3 2,3298 2,8018 28,032 28,03 0,3833 0,3665 0,356 1,2352 1,2442 1,250 937,9 921,3 903,	4 220,4 220,4 2000,0 2100,0 2000,0 3 3320,3 3140,3 3 2.4410-3 2.5632-3 9 28,042 28,044 5 0.3505 0.3465 4 1.2545 1.2576	15.000 15.000 220.4 220.4 1900.0 1800.0 2960.3 2780.3 2.6982-3 2.8482-3 3 2.8,045 28.046 0.3435 0.3409 1.2601 1.2624 842.5 820.8	15,000 15,000 220.4 220.4 1700.0 1600.0 2600.3 2420.3 3,0157-3 3,2042-3 28,046 28,046 0,3366 0,3362 1,2647 1,2671 798.4 775.3
MOLE FRACTIONS AR 0.00828 0 C0 0.06302 0 C02 0.08487 0	0.00931 0.00833 0.00834 0.05898 0.05619 0.05439	0.00835 0.00835 0.0083	6 0.00836 0.00836	0,00836 0.00836 0.04962 0.04868	0.00836 0.00836

ADD CIST ADD H201L1

CASE= 0 0/F= 11.1111 P, ATM 20.000 20.000 P, PSIA 293.9 293.9 T, DEG k 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 4.4378-3 4.7548-3 M, MOL WT 27.311 27.311 CP, CAL/IGGI(K) 0.3403 0.3385 GAMMA (5) 1.2719 1.2738 SON VEL, M/SEC 762.1 736.8	F/A= 0.09000 PERCENT F 20.000 20.000 20.000 20.000 130.0 1200.0 1100.0 1880.3 1700.3 1520.3 5.1206-3 5.5475-3 6.0536-3 27.312 27.313 27.321 0.3370 0.3364 0.3428 1.2755 1.2765 1,2739 710.5 682.9 653.0	20.000 20.000 20.000 293.9 293.9 293.9 1000.0 900.0 800.0 1340.3 1160.3 980.3	20.000 20.000 293.9 293.9 700.0 600.0 800.3 620.3	20.000 20.000 20.000 293.9 293.9 293.9 500.0 400.0 300.0 440.3 260.3 80.3 1.4126-2 1.8467-2 2.8113-2 28.979 30.308 34.602 0.2812 1.7884 0.3442 1.3246 1.1766 1.2128 435.9 359.3 295.7
MOLE FRACTIONS AR O.00806 C:S: 0.00000 0.00000 CH4 0.00000 0.07610 0.07308 C02 0.08601 0.08401 H20 0.03945 0.04247 H20:L: 0.00000 0.00000 H20 0.11484 0.11181 NH3 0.00001 0.00001 N2 0.67552 0.67553	0.00806 0.00607 0.00807 0.00000 0.00000 0.00000 0.00000 0.00001 0.00014 0.06940 0.06488 0.05911 0.09271 0.09723 0.10292 0.04613 0.05059 0.05584 0.00000 0.00000 0.00000 0.10814 0.10364 0.09813 0.00002 0.00044 0.00007 0.67553 0.67555 0.67572	0.00809 0.00824 0.00835 0.00000 0.00000 0.00725 0.00175 0.01052 0.01788 0.04964 0.02872 0.00814 0.11131 0.12532 0.13467 0.05915 0.04693 0.02525 0.00000 0.00000 0.00000 0.09201 0.08931 0.09853 0.0014 0.00021 0.00020 0.67790 0.68976 0.69972	0.00837 0.00833 0.01691 0.02509 0.01861 0.01653 0.00125 0.00010 0.13140 0.12577 0.01014 0.00284 0.00000 0.00000 0.11247 0.12335 0.00016 0.00011 0.70059 0.69787	0.00826 0.00813 0.00806 0.03459 0.05071 0.05778 0.01216 0.00375 0.00000 0.00000 0.00000 0.00000 0.11931 0.10888 0.10433 0.00047 0.00002 0.00000 0.00000 0.04140 0.15293 0.13319 0.10652 0.00137 0.00006 0.0001 0.00000 0.69196 0.68058 0.67552
CASE= 0 0/F= 11.1111 P. ATM 30.000 30.000 P. PS1A 440.9 440.9 T. DEG K 2800.0 2700.0 T. DEG F 4580.3 4400.3 RHO, G/CC 3.5509-3 3.6884-3 M, MOL WT 27.195 27.240 CP, CAL/IGJIK1 0.4595 0.4234 GAMMA (5) 1.2121 1.2243 SON VEL, M/SEC 1018.6 1004.5	F/A= 0.09000 PERCENT F 30.000 30.000 30.000 440.9 440.9 2400.0 4220.3 4040.3 3860.3 .8343-3 3.9903-3 4.1582-3 27.268 27.286 27.297 0.3981 0.3810 0.3697 1.2348 1.2431 1.2493 989.4 973.1 955.6	30.000 30.000 30.000 440.9 440.9 440.9 2300.0 2200.0 2100.0 3680.3 3500.3 3320.3	30.000 30.000 440.9 410.9 2000.0 1900.0 3140.3 2960.3	30.000 30.000 30.000 440.9 440.9 440.9 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 5.5472-3 5.8735-3 6.2406-3 27.311 27.311 27.311 0.3463 0.3442 0.3423 1.2661 1.2681 1.2700 833.0 810.1 786.5
MOLE FRACTIONS AR CO 0.09803 0.00804 CO 0.09314 0.09176 CO2 0.06828 0.06992 H 0.00235 0.00163 H2 0.02501 6.02512 H20 0.12576 0.12688 NH3 0.00000 0.00000 NO 0.00155 0.00090 N2 0.67188 0.67330 0 0.00020 0.00009 0H 0.00340 0.00216 O2 0.00040 0.00018	0.00805 0.00806 0.00806 0.09072 0.08386 0.08907 0.07113 0.07210 0.07296 0.00111 0.00073 0.00047 0.12740 0.12747 0.12721 0.00000 0.00000 0.00000 0.00050 0.00026 0.00013 0.67421 0.67477 0.67510 0.0004 0.0001 0.00001 0.0013 0.0007 0.00042 0.0008 0.00003 0.00001	0.00806 0.00806 0.00806 0.08826 0.08739 0.08641 0.07380 0.07470 0.07569 0.0029 0.00017 0.0011 0.12670 0.12598 0.12508 0.00000 0.00000 0.00000 0.67530 0.67541 0.67546 0.00002 0.00000 0.00000 0.00002 0.00001 0.00000 0.00002 0.00011 0.00005 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000	0.00806 0.00806 0.08529 0.08399 0.07682 0.07811 0.00005 0.00003 0.03026 0.03156 0.12400 0.12272 0.00000 0.00000 0.67550 0.67551 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00806 0.00806 0.00806 0.08248 0.08071 0.07861 0.07963 0.08140 0.08350 0.00001 0.00000 0.00000 0.03307 0.03485 0.03695 0.12122 0.11944 0.11734 0.00000 0.00001 0.00001 0.67552 0.67552 0.67552 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

ADD CISE ADD H201LE

CASE= 0 0/F= 10,000 P, ATM 40,000 40,0 P, PSIA 587.8 587 T, DEG k 1500.0 1400 T, DEG F 2240.3 206 RHO, G/CC 8.6533-3 9,2716 M, MOL NT 26,627 26.6 CP, CAL/IGI(K) 0,3460 0,36 GAMMA (S) 1,2751 1,22 SON VEL,M/SEC 772.8 743	000 40,000 40,000 40,007 78 587.8 587.8 587.8 587.8 10.0 1300.0 1200.0 1100 1.3 1880.3 1700.3 1520 5.28 26,630 26,643 26,7 120.2 11850 0.433 166 1.247 1.2736 1.247	00 40.000 40.000 .6 587.8 587.8 .0 1000.0 900.0 .3 1340.3 1160.3 .2 1.3274-2 1.5203-2 1 11 27.231 28.069 0.6404 0.6243 38 1.1995 1.1909	597.8 587.8 800.0 700.0 980.3 800.3 .7434-2 2.0097-2 2. 28.612 28.860 0.4339 0.3421	40.000 40.000 587.8 587.8 600.0 500.0 620.3 440.3 3525-2 28.257-2 28.955 28.983 0.3017 0.2839 1.3017 1.3200 473.6 435.1	40.000 40.000 587.8 587.8 400.0 300.0 260.3 80.3 4.0478-2 5.7415-2 33.215 35.335 0.9003 0.3362 1.1780 1.2071 343.4 291.9
MOLE FRACTIONS AR C	000 0 00000 0 00000 0 0000 001 0 00003 0 00024 0 0002 0056 0 09522 0 00864 0 0.080 142 0 07875 0 08421 0 0.092 0331 0 0.06751 0 07226 0 0.074 000 0 00000 0 00000 0 0.080 025 0 0.09757 0 0.0928 0 0.087 005 0 00007 0 0.00012 0 0.000	00 0.00000 0.01265 026 0.01119 0.02026 026 0.05785 0.02325 133 0.10889 0.12492 00 0.06356 0.09951 00 0.00000 0.00000 0.00207 0.09187 0.00031 0.00032	0.02697 0.03552 0 0.02265 0.02258 0 0.00553 0.00085 0 0.12677 0.12294 0 0.01989 0.00782 0 0.00000 0.00000 0 0.10756 0.11983 0 0.00029 0.00022 0	.00810 0.00802 .04370 0.05426 .01979 0.01469 .00007 0.00000 .11713 0.11016 .00218 0.00036 .00000 0.00000 .13023 0.14065 .00015 0.00008 .67845 0.67179	0.00780 0.00779 0.07990 0.08148 0.00085 0.00000 0.00000 0.00000 0.09353 0.09251 0.00001 0.00000 0.11708 0.16497 0.04711 0.00065 0.00000 0.00000 0.65371 0.65260
CASE= 0 0/F= 10.000 P. ATM 50.000 50.0 P. PSIA 734.8 73. T. DEG k 2800.0 2700 T. DEG F 4580.3 4400 RHO, G/CC 5.7790-3 5.9981 M. MOL HT 26.556 26.1 CP. CAL//(G)/(K) 0.4204 0.44 GAMMA (5) 1.2319 1.22 SON VEL,M/SEC 1039.2 1023	000 50.000 50.000 50.001 18 734.8 734.8 734.8 734.8 734.8 734.10.0 2600.0 2500.0 2400 1.3 4220.3 4040.3 3860 3736.2 6.5935-3 6.2335-3 6.4355-3 6.7576.6 0.3865 0.3764 0.366 1.2522 1.255	00 50.000 50.000 734.8 734.8 0 2300.0 2200.0 1.3 3680.3 3500.3 37.0525-3 7.3738-3 7 16 26.621 26.623 0.3641 0.3604 53 1.2596 1.2622	734.8 734.8 2100.0 2000.0 3320.3 3140.3 77254-3 8.1120-3 8. 26.625 26.626 0.3575 0.3551	50.000 50.000 7.34.8 734.8 1900.0 1800.0 2960.3 2780.3 5391-3 9.0136-3 26.626 26.627 0.3530 0.3511 1.2682 1.2700 867.4 844.9	50.000 50.000 734.8 734.8 1700.0 1600.0 2600.3 2420.3 9.5439-3 1.0140-2 26.627 26.627 0.3493 0.3476 1.2717 1.2735 821.6 797.6
MOLE FRACTIONS AR CO 0.00777 0.00 CO 0.12168 0.12(CO2 0.05184 0.05(H 0.00235 0.00 H2 0.04157 0.04(H20 0.12145 0.12(NH3 0.00000 0.00(NO 0.00069 0.00(N2 0.65052 0.65(0 0.00007 0.00(OH 0.00197 0.00(OH 0.00197 0.00(0.0536 0.05366 0.05450 0.055888 0.05366 0.05450 0.05368 0.05450 0.05588 0.00112 0.00074 0.00075 0.00074 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.00074 0.00075 0.0000000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00	54 0.11763 0.11660 37 0.05632 0.05737 47 0.00029 0.00017 29 0.04523 0.04629 91 0.12015 0.11920 90 0.00001 0.00001 90 0.00003 0.00001 91 0.0000 0.00000 92 0.65244 0.65251 93 0.0000 0.00000 94 0.00013 0.00006	0.11542 0.11407 0 0.05855 0.05991 0 0.00010 0.00005 0 0.4748 0.04885 0 0.11806 0.11673 0 0.00001 0.00001 0 0.00000 0.00000 0 0.65256 0.65258 0 0.00000 0.00000 0	.00779 0.00779 .11251 0.11070 .06147 0.06329 .00003 0.00001 .05042 0.05223 .11518 0.11337 .00001 0.00001 .00000 0.00000 .65259 0.65260 .00000 0.00000 .00000 0.00000	0.00779 0.00779 0.10858 0.10608 0.06541 0.06790 0.00000 0.00000 0.05435 0.05683 0.11125 0.10876 0.00002 0.00003 0.00000 0.00000 0.65260 0.65260 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

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CASE =
                 0/F=
                         0.0000
                                    E/A = 0.00000
                                                    PERCENT FUEL= 0.0000
                                                                               PHI = 0.0000
 . ATM
                 6.0000
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P. PSIA
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                                             2500.0
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                                                                                                              1800.0
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                                                                                                                                 1600.0
T, DEG K
                 2800.0
                           2700.0
                                    2600.0
                                                      2400.0
                                                                2300.0
                                                                                            2000.0
                                                                                                              2780.3
T, DEG F
                 4580.3
                          4400.3
                                    4220.3
                                             4040.3
                                                      3860.3
                                                                3680.3
                                                                         3500.3
                                                                                  3320.3
                                                                                           3140.3
                                                                                                     2960.3
                                                                                                                        2600.3
                                                                                                                                 2420.3
                                                             9.2042-4 9.6245-4 1.0084-3
                                                                                                            1.1766-3 1
RHO, G/CC
               7.5279-4 7.8190-4 8.1289-4 8.4606-4 8.8177-4
                                                                                         1.0589-3 1
                                                                                                    .1147-3
                                                                                                                       .2458-3 1
                                                                                                                                 3237-3
M. MOL WIT
                 28.827
                          28.872
                                    28.905
                                             28.927
                                                                28.952
                                                                         28.958
                                                                                  28.961
                                                                                           28.963
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                                                      28.942
                                    0.3761
CP, CAL/(G)(K)
                          0.3954
                                             0.3605
                                                      0.3480
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                 0.4188
GAMMA (S)
                 1.2188
                          1.2273
                                    1.2357
                                             1.2437
                                                      1.2513
                                                               1.2583
                                                                         1,2648
                                                                                  1,2709
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SON VEL.M/SEC
                  992.1
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MOLE FRACTIONS
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SON VEL, M/SEC
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P, ATM 10,000 10,000 10,000 P, PSIA 147.0 147.0 147.0 147.1 1, DEG k 1500.0 1400.0 1300. T, DEG F 2240.3 2060.3 1880.	0 147.	.0 147.0 147.0 147.0 .0 800.0 700.0 600.0 .3 980.3 800.3 620.3 -3 4.4126-3 5.0430-3 5.8835-3 57 28.967 28.967 28.967 23 0.2666 0.2606 0.2546 .58 1.3466 1.3574 1.3688	10.000 10.000 10.000 147.0 147.0 147.0 500.0 400.0 300.0 440.3 260.3 80.3 7.0602-3 8.8253-3 1.1961-2 28.967 28.967 29.444 0.2492 0.2448 0.3206 1.3799 1.3893 1.3048 445.0 399.4 332.5
MOLE FRACTIONS AR CO2 0.02088 0.02088 0.0208 H20(L) 0.00000 0.00000 0.0000 H20 0.01961 0.01962 0.0196 NO 0.0012 0.00002 0.00001 0.0000 NO2 0.0002 0.00001 0.0000 NO2 0.77262 0.77287 0.7730 OH 0.00002 0.0001 0.0000 OC 0.17641 0.17666 0.1768	8 0.02688 0.02088 0.0208 0 0.00000 0.00000 0.00000 0.000 2 0.01962 0.01962 0.01962 0.019 9 0.00020 0.00009 0.00003 0.000 1 0.00001 0.00001 0.00000 0.000 3 0.77313 0.77319 0.77321 0.773 0 0.00000 0.00000 0.0000 0.000	88 0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.77323 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00923 0.00923 0.00923 0.02088 0.02088 0.02088 0.00000 0.00000 0.01621 0.01962 0.01962 0.00341 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.77323 0.00000 0.00000 0.00000 0.17703 0.17703 0.17703
P, ATM 15.000 15.000 15.00 P, PS1A 220.4 220.4 220. T, DEG k 2800.0 2700.0 2600 T, DEG F 4580.3 4400.3 4220.	4 220.4 220.4 220.0 220.0 2200 2200 2200	.4 220.4 220.4 220.4 .0 2100.0 2000.0 1900.0 .3 3320.3 3140.3 29.0.3 -3 2.5209-3 2.6472-3 2.7867-3 54 28.960 28.963 28.965 86 0.3309 0.3243 0.3185 72 1.2635 1.2694 1.2752	15,000 15,000 15,000 220,4 220,4 220,4 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 2,9417-3 3,1148-3 3,3095-3 28,966 28,967 28,967 0,3132 0,3083 0,3037 1,2808 1,2863 1,2919 813,5 792,3 770,3
MOLE FRACTIONS AR CO 0.00185 0.00920 0.0092 CO2 0.01892 0.01957 0.0200 HU 0.00032 0.00012 0.0000 H2 0.00003 0.00016 0.000 H2 0.0003 0.00016 0.000 H2 0.01592 0.01674 0.017 N0 0.03238 0.02840 0.0244 N02 0.00007 0.00006 0.0000 N2 0.0558 0.75559 0.7588 0 0.00551 0.00370 0.0020 0H 0.00659 0.00599 0.00370 02 0.15653 0.15967 0.1624	8 0.00047 0.00027 0.00015 0.000 0.00015 0.000 0.00037 0.02037 0.02039 0.02072 0.020 0.02030 0.00001 0.000 0.00001 0.000 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00003 0.01099 0.01845 0.01880 0.019 0.02100 0.01764 0.01461 0.0114 0.0114 0.015 0.00006 0.00006 0.00005 0.000 0.0006 0.00005 0.000 0.0005 0.000 0.0005 0.000005 0.00005 0.00005 0.00005 0.00005 0.00005 0.00005 0.00005 0.00	08 0.0004 0.0002 0.00001 0.00001 0.00001 0.000000	0.00923 0.00923 0.00923 0.00000 0.00000 0.00000 0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.01955 0.01958 0.01960 0.00001 0.00281 0.00189 0.00003 0.00003 0.00003 0.77119 0.77180 0.77227 0.00001 0.00000 0.00004 0.00015 0.00008 0.00004 0.00015 0.00008 0.00004 0.17495 0.17557 0.17605

P, ATM 20.000 P, PSIA 293.9 T, DEG K 1500.0 T, DEG F 2240.3	50,0000 F/A= 0.02000 20,000 29,000 20,000 293.9 293.9 293.9 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 5.0455-3 5.4314-3 5.8841-3 28,970 28,970 28,970 0.2999 0.2955 0.2911 1.2966 1.3023 1.3083 721.8 697.1 671.3	20,000 20,000 20,000 293.9 293.9 293.5 1100.0 1000.0 900.0 1520.3 1340.3 1160.3	9 293.9 293.9 29 800.0 700.0 60 8 980.3 800.3 62 8 8261-3 1.0087-2 1.176 0 28.970 28.969 28. 0.2704 0.2642 0.2 1 1.3399 1.3508 1.3	3.9 293.9 293.9 293.9 500.0 500.0 400.0 300.0 500.3 440.3 260.3 80.3 8-2 1.4122-2 1.7652-2 2.4446-2 28.970 28.970 30.089 579 0.2522 0.2474 0.2926
MOLE FRACTIONS AR C02 0.04106 H201L) 0.00000 H20 0.3886 N0 0.00108 N02 0.00002 N2 0.76517 OH 0.00002 02 0.14464	0.00065 0.00036 0.00018 0.00002 0.00001 0.00001 0.76539 0.76554 0.76563	0.00914 0.00914 0.00914 0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 0.03887 0.03887 0.03888 0.00008 0.00003 0.00000 0.00001 0.00001 0.00000 0.76568 0.76570 0.7657 0.00000 0.00000 0.00000 0.14517 0.14519 0.14526	0 0,04106 0.04106 0.04 0 0,00000 0.00000 0.00 7 0,03887 0.03887 0.03 1 0,00000 0.00000 0.00 0 0,00000 0.00000 0.00 1 0,76571 0.76571 0.76 0 0,00000 0.00000 0.00	106 0.04106 0.04106 0.04106 0.03720 0.00000 0.00000 0.03720 0.03887 0.03887 0.00167 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.76572 0.76572 0.76572 0.76572 0.00000 0.00000 0.00000 0.00000 0.00000
CASE= 0 0/F= P, ATM 30,000 P, PSIA 440,9 T, DEG K 2800.0 T, DEG F 4580.3 RHD, G/CC 3.7620-3 M, MOL WT 28.812 CP, CAL/(G)(K) 0.4340 GAMMA (S) 1.2103 SON VEL,M/SEC 988.9	50.0000 F/A= 0.02000 30.000 30.000 30.000 440.9 440.9 440.9 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 3.9077-3 4.0629-3 4.2291-3 28.859 28.894 28.919 0.4110 0.3917 0.3757 1.2179 1.2255 1.2330 973.3 957.6 941.4	440.9 440.9 440.9 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3	440.9 440.9 44 2100.0 2000.0 190 3 3320.3 3140.3 295 3 5.0422-3 5.2949-3 5.574 7 28.962 28.965 28. 9 0.3354 0.3290 0.3 1 1.2590 1.2646 1.2	0.9 440.9 440.9 440.9 0.0 1800.0 1700.0 1600.0 0.3 2780.3 2600.3 2420.3 0.3 5.8839-3 6.2301-3 6.6196-3 0.3 28.969 28.969 28.970 0.3181 0.3133 0.3087
MOLE FRACTIONS AR 0.00909 C0 0.00290 C02 0.03794 H02 0.00038 H20 0.0335 N0 0.02915 N02 0.0008 N2 0.74693 0 0.00352 OH 0.00788	0.00191 0.00121 0.00073 0.03900 0.03975 0.04026 0.00017 0.00009 0.00005 0.00024 0.00003 0.00002 0.00026 0.00017 0.00011 0.03540 0.03626 0.03694 0.02555 0.02211 0.01889 0.00007 0.00007 0.00007 0.74998 0.75261 0.75490 0.00237 0.00154 0.00096 0.00591 0.00455 0.00342	0.00002 0.00001 0.0000 0.0007 0.00004 0.0000 0.03749 0.03790 0.0382 0.01589 0.01314 0.0106 0.00006 0.00006 0.0000 0.75687 0.75857 0.7600 0.00058 0.00033 0.00014 0.00250 0.00177 0.0012	2 0.00006 0.00003 0.00 3 0.04100 0.04103 0.04 0 0.00000 0.00000 0.00 1 0.00001 0.00001 0.00 2 0.00001 0.00001 0.00 2 0.0084 0.03860 0.03 6 0.00847 0.00657 0.00 6 0.00005 0.0005 0.00 2 0.76126 0.76230 0.76 3 0.00009 0.00005 0.00 1 0.00009 0.0005 0.00	001 0.0000 0.0000 0.00000 0.04106 0.04106 0.04106 000 0.00000 0.00000 0.00000 000 0.00000 0.00000 0.00000 000 0.00000 0.00000 0.00000 001 0.00004 0.00003 0.00003 002 0.00001 0.00000 0.00000 002 0.00001 0.00000 0.00000

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F/A= 0.03000 PERCENT FUEL= 2.9126 PHI= 0.4396
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P, ATM 40.000
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P. PSIA
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T, DEG K
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T, DEG F
RHO, G/CC
                              9.4153-3 1.0088-2 1.0864-2 1.1769-2 1.2839-2 1.4123-2 1.5692-2 1.7654-2 2.0176-2 2.3538-2 2.8246-2 3.5307-2 4.9918-2
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CP, CAL/(G)(K)
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GAMMA (S.)
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SON VEL.M/SEC
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MOLE FRACTIONS

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OH
                                   0.11350 0.11370 0.11363 0.11391 0.11396 0.11398 0.11400 0.11400 0.11400 0.11400 0.11400 0.11400 0.11400
                                                                              CASE= 0 0/F= 33,3333
P, ATM 50.000 50.000
P, PSIA 734.8 734.8
T, DEG K 2800.0 2700.0
T, DEG F 4580.3 4400.3
                                                                                                                                                                                                                                                                                               50.000
                                                                                                                                                                                                                                                                                               734.8
                                                                                                                                                                                                                                                                                               1600.0
                                                                                                                                                                                                                                                                                               2420.3
RHO, G/CC
                             6.2706-3 6.5135-3 6.7722-3 7.0492-3 7.3474-3 7.6700-3 8.0209-3 8.4044-3 8.8256-3 9.2907-3 9.8073-3 1.0384-2 1.1034-2
                            28.814
                                                                                28.897
                                                                                                                         28.939
                                                                                                                                              28,951
                                                                                                                                                                   28.959
                                                                                                                                                                                       28,965
                                                                                                                                                                                                            28,968
                                                                                                                                                                                                                                28.970
                                                                                                                                                                                                                                                     28.971 28.972
                                                           28.862
                                                                                                     28.922
                                                                                                                                                                                                                                                                                               28.972
M. MOL WT
                                                                                                     0.3791
                                                                                                                         0.3660
                                                                                                                                              0.3554
                                                                                                                                                                   0.3467
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                                                                                                                                                                                                                                 0.3277
                                                                                                                                                                                                                                                      0.3227
                                                                                                                                                                                                                                                                          0.3180
CP, CAL/(G)(k)
                                      0.4382
                                                           0.4148
                                                                                0.3952
                                                                                                                                                                                                                                                                                               0.3135
                                                                                                                                                                                                                                                                        1.2752
788.7
GAMMA (S)
                                      1.2080
                                                           1.2155
                                                                                1.2231
                                                                                                     1.2303
                                                                                                                         1.2372
                                                                                                                                              1.2436
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                                                                                                                                                                                                                                                     1.2702
                                                                                                                                                                                                                                                                                           1.2801
                                                                                                                                                                                                                                                      810.1
SON VEL.M/SEC
                                        987.9
                                                             972.3
                                                                                  956.5
                                                                                                       940.3
                                                                                                                         923.6
                                                                                                                                                 906.3
                                                                                                                                                                     888.4
                                                                                                                                                                                         869.8
                                                                                                                                                                                                              850.6
                                                                                                                                                                                                                                   830.6
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MOLE FRACTIONS
AR 0.00900
                                                      0.00902 0.00903 0.00904
                                                                                                                       0.00904 0.00905 0.00905 0.00905
                                                                                                                                                                                                        0.00905 0.00905 0.00905 0.00905 0.00905
                                0.00361
                                                                                                                                                                                   0.00007
CO
                                                         0.00250 0.00158
                                                                                                0.00095
                                                                                                                       0.00055 0.00030
                                                                                                                                                               0.00015
                                                                                                                                                                                                          0.00003 0.00001
                                                                                                                                                                                                                                                   0.00001 0.00000 0.00000

        0.00381
        0.00250
        0.00158
        0.00095
        0.00030
        0.00013
        0.00015
        0.00007

        0.05672
        0.05812
        0.05912
        0.05904
        0.06024
        0.06051
        0.06068
        0.06077

        0.00026
        0.00015
        0.00008
        0.00004
        0.00002
        0.00001
        0.00000
        0.00000

        0.00052
        0.00035
        0.0003
        0.00001
        0.00002
        0.00001
        0.00001
        0.00001

        0.05290
        0.05405
        0.05498
        0.05572
        0.05630
        0.05674
        0.05707
        0.05730

        0.00068
        0.00007
        0.00007
        0.00006
        0.00006
        0.00093
        0.00074

        0.0008
        0.00007
        0.00007
        0.00006
        0.00006
        0.00006
        0.00006

        0.74137
        0.74420
        0.74662
        0.74870
        0.75048
        0.75048
        0.75330
        0.75440

        0.00241
        0.00162
        0.00162
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                                                       0.05812 0.05912 0.05980 0.06024 0.06051 0.06068 0.06077 0.06081 0.06084 0.06085 0.06085 0.06086
C02
                                                                                                                                                                                                        0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0
H
                                                                                                                                                                                                          0.00001 0.00000 0.00000 0.00000 0.00000
H2
                                                                                                                                                                                                          0.05747 0.05758 0.05765 0.05769 0.05772
                                                                                                                                                                                                          0.00578 0.00436 0.00318 0.00224 0.00150
N02
                                                                                                                                                                                                         0.00005 0.00004 0.00004 0.00003 0.00003
                                                                                                                                                                                                         0.75533 0.75609 0.75671 0.75721 0.75758
                                0.00241
                                                         0.00162 0.00105 0.00066 0.00040 0.00023 0.00013 0.00006
                                                                                                                                                                                                         0.00003 0.00001 0.00001 0.00000 0.00000
0
                              0.00770 0.00604 0.00464 0.00347 0.00253 0.00179 0.00122 0.00081 0.00051 0.00030 0.00017 0.00009 0.00004
                                    0.09956 0.10138 0.10313 0.10478 0.10630 0.10769 0.10892 0.11000 0.11092 0.11169 0.11232 0.11283 0.11321
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0.3141
CP, CAL/IGI(K) 0.3189
                                                0.3095
                                                            0.3047
                                                                        0.2997
                                                                                     0.2943
                                                                                                 0.2882
                                                                                                              0.2816
                                                                                                                          0.2746
                                                                                                                                       0.2675
                                                                                                                                                   0.2608
                                                                                                                                                               0.2547
                                                                                                                                                                            1.8015
 GAMMA (S)
                      1.2741
                                  1.2793 1.2847
                                                            1.2905
                                                                        1.2968
                                                                                   1.3038 1.3122
                                                                                                              1.3220
                                                                                                                          1.3329
                                                                                                                                      1.3447
                                                                                                                                                   1.3568
                                                                                                                                                                1.3684
                                                                                                                                                                            1 1409
 SON VEL.M/SEC
                      740.5
                                  716.9
                                              692.3
                                                            666.6
                                                                        639.8
                                                                                     611.6
                                                                                                   582.1
                                                                                                               550.9
                                                                                                                          517.4
                                                                                                                                       481 2
                                                                                                                                                    441.2
                                                                                                                                                                 396.3
MOLE FRACTIONS
                    0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888 0,00888
AR
                    0.09932 0.09932 0.09932
                                                           0,09932 0,09932 0.09932 0,09932 0,09932 0,09932 0.09932
                                                                                                                                                              0.09932 0.09932
C02
                   H20(L)
 H20
                    0.74369 0.74383 0.74392 0.74397 0.74400 0.74402 0.74402 0.74403 0.74403 0.74403 0.74403 0.74403 0.74403
                     0.00007 0.00003 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
                      0.05301 0.05315 0.05324 0.05330 0.05333 0.05334 0.05335 0.05335 0.05335 0.05335 0.05335 0.05335
                                                                      PERCENT FUEL= 4,7619 PHI= 0.7327
      CASE= 0 0/F= 20,0000
                                               F/A= 0.05000
P, ATM
                      1.0000 1.0000
                                              1,0000 1,0000 1,0000 1,0000 1,0000 1,0000 1,0000
                                                                                                                                      1.0000
                                                                                                                                                   1.0000
                                                                                                                                                             1.0000 1,0000
                                   14.7
 P, PSIA
                                                                                                                         14.7 14.7
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                      14.7
                                               14.7
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                 2800.0 2700.0 2600.0 2500.0
4580.3 4400.3 4220.3 4040.3
                                                                                                                                                   1800.0 1700.0 1600.0
2780.3 2600.3 2420.3
                                                                                                 2200.0 2100.0 2000.0 1900.0
3500.3 3320.3 3140.3 2960.3
 T. DEG K
                                                                       2400.0
                                                                                     2300.0
 T. DEG F
                                                                       3860.3 3680.3
T, DEG F 4580, 3 4400. 3 4220. 3 4040. 3 3860. 3 3500. 3 3500. 3 3320. 3 3140. 3 2960. 3 2780. 3 2400. 3 2420. 3 860. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 3 3500. 
                                 28,169
                                                                                                                                                   28.971 28.974 28.976
 CP, CAL/IGITK1 0.8998
                                  0.8003
                                               0 7024
                                                            0.6106
                                                                        0.5302
                                                                                     0.4653
                                                                                                 0.4171
                                                                                                              0.3835
                                                                                                                          0.3612
                                                                                                                                       0.3465
                                                                                                                                                   0.3365
                                                                                                                                                              0.3294
                                                                                                                                                                            0.3237
 GAMMA (S) 1.1444
SON VEL,M/SEC 977.8
                                 1.1490
                                                                        1,1807
                                                                                               1.2130
                                                                                                                                                             1.2638
                                               1,1563
                                                          1.1669
                                                                                     1.1966
                                                                                                             1,2279
                                                                                                                         1.2403
                                                                                                                                      1.2500
                                                                                                                                                   1,2576
                                                                                                                                                                            1.2692
                                 956.9
                                                 937.9
                                                              920 8
                                                                          905.4
                                                                                       890.8
                                                                                                   876.3
                                                                                                              860.8
                                                                                                                           844.0
                                                                                                                                        825.7
                                                                                                                                                    0.408
 MOLE FRACTIONS
 AR
                     0.00854 0.00864 0.00871 0.00877 0.00881 0.00884 0.00886 0.00887 0.00888
                                                                                                                                     0.00888 0.00888 0.00888 0.00898
 CO
                      0.03737 0.02853
                                              0.02041
                                                           0.01359 0.00840 0.00481
                                                                                                0.00256 0.00126 0.00057
                                                                                                                                     0.00024
                                                                                                                                                  0,00009 0,00003 0,00001
                   0.05815 0.06802
                                              0.07699
                                                           0.08446 0.09012 0.09403 0.09649 0.09792 0.09868
                                                                                                                                     0.09905
                                                                                                                                                  0.09922
                                                                                                                                                             0.09928 0.09931
 C02
                   0.00662 0.00394
                                                                                                                        0.00002
                                                                                                                                                              0.00000 0.00000
                                               0.00222
                                                          0.00119
                                                                      0.00059 0.00028 0.00012 0.00005
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0.00001
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 H02
                                                                       0.00141 0.00083 0.00047 0.00024
                                                                                                                        0.00012 0.00005
                                                                                                                                                  0.00002
                                                                                                                                                              0.00001 0.00000
                                                                       0.08845 0.09050
                                                                                                0.09193 0.09288
                                                                                                                        0.09350 0.09390
                                                                                                                                                0.09413
                                                                                                                                                             0.09427 0.09435
                                                                       0.00951 0.00782
                                                                                                0.00632 0.00502 0.00390 0.00294 0.00215
                                                                                                                                                             0.00151 0.00102
                                                                                                                                                             0.00000 0.00000
                                                                      0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0
                                                                       0.73327 0.73653 0.73882 0.74040
                                                                                                                        0.74149 0.74226 0.74281
                                                                                                                                                             0.74321 0.74349
                                                                       0.00194
                                                                                    0.00111 0.00060 0.00031
                                                                                                                         0.00015 0.00007 0.00003
                                                                                                                                                             0.00001 0.00000
                                                                                                                        0.00142 0.00085 0.00048 0.00026 0.00012
                                                                       0.00700 0.00497 0.00341 0.00225
                      0.05433 0.05333 0.05215 0.05113 0.05049 0.05028 0.05043 0.05080
                                                                                                                        0.05128 0.05176 0.05219 0.05254 0.05281
```

```
CASE = 0 0/F= 16.6667
                                F/A= 0.06000
                                              PERCENT FUEL= 5.6604 PHI= 0.8792
P, ATM
                                                       1.5000
                                                                1.5000 1.5000 1.5000
                                                                                          1.5000
                                                                                                   1,5000
              1.5000
                      1,5000
                                1,5000
                                        1.5000 1.5000
                                                                                                           1.5000
                                                 22.0
P. PSIA
               22.0
                         22.0
                                22.0
                                         22.0
                                                           22.0
                                                                   22.0
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                                                                                  22.0
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                                                                                                   22.0
                                                                                                            22.0
                                                                                                                    22.0
                                                                                   700.0
               1500.0
                                         1200.0
                                                                                                    500.0
                                                                                                                     300.0
T. DEG K
                        1400.0
                                1300.0
                                                 1100.0
                                                         1000.0
                                                                   900.0
                                                                           800.0
                                                                                            600.0
                                                                                                             400.0
                                                                                   800.3
                                                                                                    440.3
T, DEG F
               2240.3
                       2060.3
                                1880.3
                                        1700.3
                                                1520.3
                                                         1340.3
                                                                 1160.3
                                                                           980.3
                                                                                            620.3
                                                                                                             260.3
                                                                                                                     80.3
RHO, G/CC
             3.5316-4 3.7838-4 4.0749-4 4.4145-4 4.8158-4 5.2974-4 5.8860-4 6.6218-4 7.5677-4 8.8290-4 1.0595-3 1.3244-3 1.9431-3
M. MOL WT
               28,979
                       28.979
                                28,979
                                         28.979
                                                 28,979
                                                         28.979
                                                                 28.979
                                                                          28,979
                                                                                  28.979
                                                                                           28.979
                                                                                                   28,979
                                                                                                            28.979
                                                                                                                    31.889
CP, CAL/(G)(K)
             0.3229
                       0.3183
                                0.3138
                                         0.3090
                                                 0.3038
                                                         0.2983
                                                                  0.2920
                                                                          0.2851
                                                                                  0.2779
                                                                                           0.2706
                                                                                                   0.2635
                                                                                                            0.2571
                                                                                                                    0.7405
GAMMA (S)
               1.2698
                       1.2746
                                1.2797
                                         1.2853
                                                 1.2915
                                                         1,2985
                                                                 1.3069
                                                                          1.3166
                                                                                  1,3276
                                                                                           1,3394
                                                                                                   1.3517
                                                                                                            1.3637
                                                                                                                    1.1699
SON VEL.M/SEC
                739.2
                        715.5
                                 690.9
                                         665.2
                                                  638.4
                                                          610.4
                                                                  580.9
                                                                           549.7
                                                                                   516.4
                                                                                            480.2
                                                                                                    440.4
                                                                                                             395.6
                                                                                                                     302.5
MOLE FRACTIONS
              0.00880
                      0.00880 0.00880
                                      0.00290 0.00880 0.00880 0.00890 0.00880
                                                                                 0.00880 0.00880
                                                                                                  0.00880
                                                                                                           0.00880
AR
002
            0.11801 0.11801 0.11802
                                       0.11862 0.11802 0.11802 0.11802 0.11802 0.11802 0.11802
                                                                                                   0.11802
            0.00000 0.00000 0.00000
0.11221 0.11223 0.11224
                                       0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
                                                                                                  0.00000
                                                                                                           0.00000 0.09124
H20(L)
                                      0.11224 0.11224 0.11224 0.11224 0.11224 0.11224 0.11224
H20
                                                                                                  0.11224
                                                                                                           0.11224 0.02100
                                                                                 0.00000 0.00000
              0,00043 0,00026 0,00014
                                      0,00007 0.00003 0.00001 0.00000 0.00000
                                                                                                  0.00000
                                                                                                           0.00000 0.00000
И0
              0.73684 0.73694 0.73700
                                      0.73703 0.73705 0.73706 0.73707 0.73707 0.73707 0.73707
                                                                                                  0.73707
                                                                                                           0.73707
                                                                                                                  0.73707
N2
              0,00004 0,00002 0,00001 0,00000 0,00000 0,00000 0,00000 0,00000 0,00000
                                                                                                 0.00000 0.00000 0.00000
              0.02365 0.02374 0.02381 0.02384 0.02386 0.02387 0.02388 0.02388 0.02388 0.02388
                                                                                                  0.02388 0.02388
                                                                                                                   0.02388
    CASE = 0 0/F = 16.6667
                                F/A= 0.06000
                                               PERCENT FUEL= 5.6604 PHI= 0.8792
               2.0000
                       2.0000
                                2,0000
                                        2.0000 2.0000
                                                         2.0000
                                                                 2.0000 2.0000 2.0000
                                                                                           2.0000
                                                                                                   2.0000
                                                                                                            2.0000
                                                                                                                    2,0000
P. ATM
                                                                                  29.4
               29.4
                        29.4
                                                 29.4
                                                           29.4
                                                                   29.4
                                                                                           29.4
                                                                                                    29.4
                                                                                                            29.4
                                                                                                                    29.4
P, PSIA
                                29.4
                                         29.4
                                                                            29.4
               2800,0
                       2700.0
                                                                                  2000.0
                                                                                                            1700.0
                                                                                                                    1600.0
T, DEG K
                                2600.0
                                        2500.0
                                                 2400.0
                                                         2300.0
                                                                  2200.0
                                                                          2100.0
                                                                                          1900.0
                                                                                                   1800.0
T. DEG F
              4580.3
                       4400.3
                                4220.3
                                        4040.3
                                                 3860.3
                                                         3680.3
                                                                 3500.3
                                                                          3320.3
                                                                                  3140.3
                                                                                           2960.3
                                                                                                   2780.3
                                                                                                            2600.3
                                                                                                                    2420 3
RHO, G/CC
             2.4316-4 2.5462-4 2.6653-4 2.7894-4 2.9192-4 3.0561-4 3.2017-4 3.3585-4 3.5290-4 3.71-4 3.9234-4 4.1545-4 4.4144-4
M, MOL WT
                                                                 28.900
                                                                                  28.958
                                                                                                   28.974
                                                                                                                    28.978
            27.934
                       28,206
                                28.432
                                         28,611
                                                 28,745
                                                         28.839
                                                                          28,937
                                                                                           28.969
                                                                                                            28.977
                                                                          0.3866
                                                                                                            0.3327
CP, CAL/(G)(K) 0.8482
                       0.7651
                                0.6825
                                         0.6031
                                                 0.5306
                                                         0.4690
                                                                 0.4209
                                                                                  0.3638
                                                                                           0.3490
                                                                                                   0.3394
                                                                                                                    0.3274
                                                                                                                   1.2652
             1.1470
                                                 1.1801
                                                                 1.2110
                                                                          1,2258
                                                                                           1.2475
                                                                                                   1.2546
                                                                                                            1.2603
GAMMA (S)
                       1.1513
                                1.1580
                                         1.1675
                                                         1,1951
                                                                                  1.2381
SON VEL.M/SEC
             977.7
                        957.3
                                 938.3
                                         921.0
                                                  905.1
                                                          890.2
                                                                  875.5
                                                                           860.0
                                                                                   843.2
                                                                                            824.8
                                                                                                    805.0
                                                                                                             784.1
                                                                                                                     762.1
MOLE FRACTIONS
AR
              0.00848
                      0.00856 0.00863 0.00869
                                                0.00873 0.00876 0.00878 0.00879 0.00879 0.00880 0.00880 0.00880 0.00880
CO
              0.04159
                      0.03211
                               0.02339
                                       0.01595
                                                0.01011 0.00592 0.00319 0.00158
                                                                                 0.00072
                                                                                          0.00030
                                                                                                  11000.0
                                                                                                           0.00004
                                                                                                                   0.00001
C02
              0.07216
                      0.08276
                              0.09240
                                       0.10057
                                                0.10696 0.11153 0.11450
                                                                        0.11626
                                                                                  0.11721
                                                                                          0.11768
                                                                                                  0.11788
                                                                                                           0,11797 0,11800
                       0.00299
                              0.00170
                                       0.00092
                                                0.00046 0.00022 0.00010 0.00004
                                                                                  0.00001 0.00000
                                                                                                  0.00000
                                                                                                           0.00000 0.00000
H
              0.00499
H<sub>0</sub>2
                      0.00001
                               0.00001
                                       0.00001
                                                0.00000 0.00000 0.00000
                                                                        0.00000
                                                                                  0.00000 0.00000
                                                                                                  0.00000
                                                                                                           0.00000 0.00000
             0.00001
                      0.00559
                                                                                                           0.00001 0.00000
H2
              0.00753
                              0.00397
                                        0.00259
                                                0.00172 0.00104
                                                                0.00059
                                                                        0.00031
                                                                                  0.00015 0.00007
                                                                                                  0.00003
H20
                                       0.10391
                                                0.10667 0.10866 0.11001
                                                                        0.11090
                                                                                  0.11147 0.11181
                                                                                                   0.11201
                                                                                                           0.11213 0.11219
              0.08961
                      0.09548 0.10022
                       0.01217
                               0.01003
                                       0.00818 0.00661 0.00531
                                                                0.00424 0.00334
                                                                                  0.00258 0.00195
                                                                                                  0.00142
                                                                                                           0.00100 0.00067
NO
              0.01454
N2
              0.70320
                       0.71133 0.71814
                                      0.72361
                                                0.72780 0.73083 0.73293 0.73432
                                                                                  0.73523 0.73583
                                                                                                  0.73623
                                                                                                           0.73651
                                                                                                                   0.73671
                                                                                                           0.00000 0.00000
                       0.00448 0.00277 0.00165 0.00096
                                                       0.00053 0.00029 0.00015
                                                                                  0.00007
                                                                                          0.00003 0.00001
              0.00701
              0.01710 0.01337 0.01015 0.00750 0.00540 0.00378 0.00257 0.00169 0.00106 0.00064 0.00036 0.00019
                                                                                                                  0.00009
              0.03376 0.03116 0.02958 0.02632 0.02457 0.02342 0.02281 0.02263 0.02270 0.02290 0.02313 0.02335
```

```
3,0000
                                                                                                                               44.1 44.1
700.0 600.0
                                                                                                                                                                        44.1
T, DEG K
                        1500.0
                                    1400.0
                                                1300.0
                                                              1200.0
                                                                          1100.0
                                                                                       1000.0
                                                                                                        900.0
                                                                                                                    800.0
                                                                                                                                                            500.0
                                                                                                                                                                         400.0
                    2240.3 2060.3 1880.3 1700.3 1520.3
T, DEG F
                                                                                       1340.3 1160.3 980.3
                                                                                                                                800.3 620.3
                                                                                                                                                                         260.3
                                                                                                                                                            440.3
                                                                                                                                                                                       80.3
RHO, G/CC
                     7.0633-4 7.5681-4 8.1503-4 8.8296-4 9.6323-4 1.0596-3 1.1773-3 1.3244-3 1.5136-3 1.7659-3 2.1191-3 2.6489-3 3.9974-3
                                    28.981
M, HOL WT
                28,980
                                                28,981
                                                               28.981
                                                                            28.981
                                                                                         28.981
                                                                                                      28.981
                                                                                                                   28.981
                                                                                                                                28.981 28.981
                                                                                                                                                           28.981
CP, CAL/(G)(K)
                     0.3268
                                     0.3218
                                                  0.3171
                                                               0.3122
                                                                            0.3071
                                                                                         0.3015
                                                                                                      0.2951
                                                                                                                   0.2880
                                                                                                                                 0.2806
                                                                                                                                              0.2731
                                                                                                                                                           0.2658
                                                                                                                                                                        0.2590
GAMMA (S) 1.2659
SON VEL.M/SEC 738.1
                                    1.2710
                                                 1.2760
                                                             1.2814
                                                                          1,2875
                                                                                         1.2944 1.3027 1.3124
                                                                                                                                1.3234
                                                                                                                                             1.3353
                                                                                                                                                                        1.3600
                                                                                                                                                         1.3477
                                    714.5
                                                  689 9
                                                               664.2
                                                                              637 4
                                                                                         609.4
                                                                                                      580.0
                                                                                                                  548.8
                                                                                                                                 515.5
                                                                                                                                              479.4
                                                                                                                                                            439.7
                                                                                                                                                                         395.1
MOLE FRACTIONS
AR
                      0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873
CO
                     0.00006 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
                   0.13309 0.13314 0.13315 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.1331
C02
H2
 H20+L+
H20
NO
N2
                     0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0 0.0000,0
OH
02
                       0,0000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0
      CASE= 0 0/F= 14.6540 F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1.0000
MOLE FRACTIONS
AR
                      0.00842 0.00850 0.00855 0.00860 0.00664 0.00867 0.00869 0.00871 0.00872 0.00872 0.00873 0.00873 0.00873
CO
                       0.04612 0.03702 0.02865 0.02135 0.01528
                                                                                        0.01048 0.00687 0.00428 0.00253 0.00141 0.00073 0.00035 0.00015
C02
                      0.08234 0.09253 0.10180 0.10985 0.11651
                                                                                        0.12175 0.12569 0.12850 0.13041 0.13163 0.13237 0.13278 0.13299
H
                      0.00377 0.00231 0.00136 0.00076 0.00041
                                                                                        0.00021 0.00010 0.00005 0.00002 0.00001 0.00000 0.00000 0.00000
H02
                      00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 00000,0 10000,0 10000,0 10000,0
H2
                      0.00858 0.00666
                                                0.00506 0.00375 0.00271 0.00190 0.00129 0.00085 0.00054 0.00032 0.00018 0.00010 0.00005
H20
                      0.10510 0.11042
                                                 0.11473 0.11813 0.12073 0.12267 0.12407 0.12505 0.12570 0.12612 0.12638 0.12653 0.12661
                  0.01056 0.00832
NO
                                                0.00636 0.00470 0.00336 0.00231 0.00152 0.00096 0.00057 0.00033 0.00017 0.00008 0.00004
N2
                       0.70033 0.70741
                                                 0.71339 0.71830 0.72219 0.72517 0.72735 0.72889 0.72993 0.73059 0.73099 0.73122 0.73133
0
                    0.01328 0.01001 0.00729 0.00511 0.00345 0.00223 0.00138 0.00081 0.00045 0.00023 0.0001 0.00005 0.00002 0.01788 0.01466 0.01156 0.00877 0.00638 0.00445 0.00296 0.00188 0.00113 0.00064 0.00034 0.00017 0.00008
```

```
ADD H20(L)
ADD CIST
P, PSIA
T, DEG K
```

02

0.01171 0.00895

0.00643 0.00429 0.00257

```
CASE=
            0 0/F= 14.2857
                              F/A= 0.07000 PERCENT FUEL= 6.5421 PHI= 1.0258
P. ATM
              6.0000
                     6,0000
                              6.0000
                                      6.0000 6.0000 6.0000 6.0000 6.0000 6.0000
                                                                                       6,0000
                                                                                               6,0000
                                                                                                       6.0000
                                                      88.2
                       88.2
                               88.2
                                               88.2
              88.2
                                        88.2
                                                               88.2
                                                                        88.2
                                                                               88.2
                                                                                       88.2
                                                                                                88.2
                                                                                                         88,2
              1500.0
                                                                900.0
                                                                        800.0
                                                                                        600.0
                       1400.0
                              1300.0
                                       1200.0
                                               1100.0
                                                       1000.0
                                                                                700.0
                                                                                                500.0
                                                                                                        400.0
                                                                                                                300.0
                      2060.3
                                               1520.3
                                                     1340.3 1160.3
T, DEG F
              2240.3
                              1880.3
                                      1700.3
                                                                        980.3
                                                                               800.3
                                                                                        620.3
                                                                                                440.3
                                                                                                        260.3
RHO, G/CC
            1.4057-3 1.5061-3 1.6219-3 1.7571-3 1.9168-3 2.1085-3 2.3428-3 2.6357-3 3.0147-3 3.5265-3 4.2371-3 5.2977-3 8.0699-3
M, MOL WT
              28.836
                      28.836
                              28.836
                                       28.836
                                               28.836
                                                       28.836
                                                               28,836
                                                                      28.837
                                                                               28.861
                                                                                       28,937
                                                                                               28.974
                                                                                                       28,981
                                                                                                               33.109
CP, CAL/IGITED
             0.3261
                      0.3226
                              0.3188
                                       0,3146
                                               0.3101
                                                       0.3052
                                                               0.2994
                                                                       0.2933
                                                                               0.3026
                                                                                       0.2904
                                                                                               0.2704
                                                                                                       0.2597
                                                                                                               0.4049
             1.2679
GAMMA (S)
                       1,2716
                              1.2758
                                      1.2804
                                               1,2857
                                                       1,2916
                                                               1.2990
                                                                       1.3077
                                                                               1.3053
                                                                                       1.3189
                                                                                               1.3423
                                                                                                       1.3589
                                                                                                               1.2112
                                                638.6
                                                                        549.2
SON VEL.M/SEC
                       716.5
                               691.5
                                       665.6
                                                        610.3
                                                                580.6
                                                                                513.0
                                                                                        476.8
                                                                                                438.8
                                                                                                        394.9
MOLE FRACTIONS
AR
             0.00867 0.00867
                             0.00867 0.00867 0.00867 0.00867 0.00867 0.00868 0.00870 0.00872 0.00872
                                                                                                              0.00867
                            CISI
            0.00000 0.00000
            0.00000 0.00000
CH4
CO
            0.00727 0.00692
C02
            0.12840 0.12876
H2
            0.00278 0.00313
                                                                                                     0.00004
                             0.0000.0 00000.0 00000.0 00000.0 00000.0 00000.0 00000.0
                                                                                     0.00000 0.00000
H201L1
            0.00000 0.00000
                                                                                                     0.00000
H20
            0.12630 0.12595
                             0.12550 0.12493 0.12420 0.12330 0.12224 0.12112 0.12085
                                                                                     0.12305 0.12436
                                                                                                     0.12465 0.00503
            0.00000 0.00000
NH3
                             0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00003 0.00003 0.00002 0.00001 0.00000
N2
             0.72657 0.72657
                             0.72657 0.72657 0.72657 0.72657 0.72657 0.72659 0.72719 0.72911 0.73003
                                                                                                     0.73022
                              F/A= 0.07000 PERCENT FUEL= 6.5421
    CASE= 0 0/F= 14.2857
                                                                  PHI= 1.0258
                              10.000 10.000 10.000 10.000 10.000 10.000
P, ATM 10.000 10.000
                                                                                     10,000
                                                                                               10.000
                                                                                                       10,000
                                                                                                               10,000
                       147.0
                               147.0
                                                                                     147.0
1900.0
2944
                                                                                               147.0
                                                                                                               147.0
P, PSIA
               147.0
                                       147.0
                                               147.0
                                                      147.0
                                                               147.0
                                                                       147.0
                                                                               147.0
                                                                                                       147.0
                       2700.0
                                       2500.0
                                               2400.0
                                                       2300.0
                                                                       2100.0
T, DEG K
              2800.0
                               2600.0
                                                               2200.0
                                                                               2000.0
                                                                                               1800.0
                                                                                                       1700.0
                                                       3680.3
                                                                      3320.3
T, DEG F
              4580.3
                      4400.3
                              4220.3 4040.3
                                               3860.3
                                                               3500,3
                                                                               3140.3
                                                                                               2780.3
                                                                                                       2600.3.
                                                                                                               2420.3
            1,2251-3 1,2787-3 1,3349-3 1,3941-3 1,4569-3 1,5237-3 1,5953-3 1,6725-3 1,7568-3 1,8494-3 1,9523-3 2,0671-3 2,1963-3
RHQ, G/CC
                                                       28.757
M. MOL WT
              28.148
                       28.329
                              28.479
                                       28.600
                                               28.691
                                                               28,799
                                                                      28.821
                                                                               28,831
                                                                                       28.834
                                                                                               28.835
                                                                                                       28.836
                                                                                                               28.836
CP. CAL/IGITEL
                              0.5778
             0.6888
                                                       0.4351
                                                                       0.3666
                       0.6324
                                       0.5263
                                               0.4787
                                                               0.3964
                                                                               0.3493
                                                                                       0,3407
                                                                                               0.3360
                                                                                                       0.3326
                                                                                                               0.3294
             1.1606
                       1,1661
                              1,1732
                                               1,1933
                                                      1.2066
                                                               1.2221
                                                                               1.2481
                                                                                       1,2543
GAMMA (S)
                                       1.1822
                                                                                               1.2583
                                                                                                       1,2614
                                                                                                               1.2646
                              943.7
                                                911.0
                                                      895.8
                                                                       865.8
SON VEL. M/SEC
                       961.3
                                        927.0
                                                                881.0
                                                                                848.5
                                                                                        829.0
                                                                                                808 1
                                                                                                        786.3
                                                                                                                763.8
MOLE FRACTIONS
AR
             0.00847
                     0.00852
                             0.00857 0.00860 0.00863
                                                      0.00865 0.00866
                                                                      0.00867
                                                                              0.00867
                                                                                      0.00867 0.00867
                                                                                                      0.00867
                                                                                                              0.00867
                                      0.02012
                                             0.01560
                                                      0.01230 0.01015
CO
             0.04032
                      0.03261
                              0.02581
                                                                      0.00898
                                                                              0.00844
                                                                                     0.00817 0.00798 0.00778
                                                                                                              0.00755
           0.09212
                                             0.11939 0.12301 0.12535
C02
                     0.10068
                             0.10818 0.11435
                                                                      0.12662
                                                                             0.12721
                                                                                      0.12749 0.12769
                                                                                                     0.12789
                                                                                                              0.12812
н
             0.00218 0.00135
                              0.00081 0.00047 0.00026 0.00014 0.00008
                                                                     0.00004
                                                                             0.00002
                                                                                      0.00001
                                                                                              0.00001 0.00000
                                                                                                              0.00000
                             H02
            0.00001 0.00001
                                                                                      0.00000
                                                                                              0.00000 0.00000
H2
            0.00720 0.00571
                                                                                      0.00195
                                                                                              0.00209
                                                                                                     0.00227
H20
            0.11279
                     0.11681
                                                                                      0.12709
                                                                                              0.12698
                                                                                                              0.12658
                                                                                                     0.12681
NO
            0.00857 0.00652
                                                                                      0.00003 0.00001 0.00000
N2
             0.70494 0.71054
                                                                                      0.72651
                                                                                              0.72655
                                                                                                     0.72656
             0.00185
                     0.00107
                                                                                      0.00000
0
                                                                                              0.00000
                                                      0.00132 0.00072 0.00035 0.00015
OH
             0.00984 0.00724
                              0.00512 0.00346
                                              0.00222
                                                                                     0.00006 0.00002 0.00001
```

0.00132 0.00054 0.00017 0.00004 0.00001 0.00000 0.00000

ADD C(S)

```
F/A= 0.08000 PERCENT FUEL= 7.4074
            CASE =
                                   0/F= 12.5000
                                                                                                                                                              PHI= 1.1723
P. ATM
                                   15,000
                                                      15,000
                                                                       15.000
                                                                                          15.000 15.000 15.000 15.000 15.000 15.000
                                                                                                                                                                                                       15.000
                                                                                                                                                                                                                             15,000
                                                                                                                                                                                                                                                 15,000
P, PSIA
                                    220.4
                                                       220.4
                                                                         220.4
                                                                                             220.4
                                                                                                               220.4
                                                                                                                                  220.4
                                                                                                                                                     220.4
                                                                                                                                                                       220.4
                                                                                                                                                                                          220.4
                                                                                                                                                                                                            220.4
                                                                                                                                                                                                                               220.4
                                                                                                                                                                                                                                                  220.4
                                 1500.0
                                                                        1300.0
                                                                                                                                                    900.0
T, DEG K
                                                      1400.0
                                                                                           1200.0
                                                                                                           1100.0
                                                                                                                                1000.0
                                                                                                                                                                                          700.0
                                                                                                                                                                                                             6.003
                                                                                                                                                                                                                                500.0
                                                                                                                                                                                                                                                  400.0
                                                                                                                                                                       800.0
                                                                                                                                                                                                                                                                     300.0
                                                                                          1700.3 1520.3
                                                                                                                               1340.3 1160.3
                                                                                                                                                                                        800.3
T, DEG F
                               2240.3
                                                      2060.3
                                                                        1880.3
                                                                                                                                                                       980.3
                                                                                                                                                                                                             620.3
                                                                                                                                                                                                                               440.3
                                                                                                                                                                                                                                                  260.3
                              3.4179-3 3.6620-3 3.9437-3 4.2724-3 4.6609-3 5.1281-3 5.7179-3 6.5160-3 7.5238-3 8.8167-3 1.0594-2 1.3245-2 2.0654-2
RHO, G/CC
M, MOL WT
                              28.046
                                                     28.046
                                                                        28.046
                                                                                          28.046 28.047
                                                                                                                                28.053
                                                                                                                                                  28.152
                                                                                                                                                                     28.516
                                                                                                                                                                                        28,811
                                                                                                                                                                                                           28.939
                                                                                                                                                                                                                             28.977
                                                                                                                                                                                                                                                28.983
                                                                                                                                                                                                                                                                  33.896
CP, CAL/IGHER
                               0.3338
                                                     0.3313
                                                                        0.3289
                                                                                           0.3267
                                                                                                             0.3250
                                                                                                                                0.3295
                                                                                                                                                   0.4066
                                                                                                                                                                     0.4310
                                                                                                                                                                                        0.3467
                                                                                                                                                                                                           0.2998
                                                                                                                                                                                                                              0.2777
                                                                                                                                                                                                                                                0.2674
                                                                                                                                                                                                                                                                   0.3475
GAMMA (S)
                               1,2695
751,4
                                                     1,2721
                                                                        1.2746
                                                                                          1.2771
                                                                                                             1.2792
                                                                                                                                1.2778
                                                                                                                                                  1.2452
                                                                                                                                                                    1.2376
                                                                                                                                                                                        1.2754
                                                                                                                                                                                                           1.3072
                                                                                                                                                                                                                             1.3301
                                                                                                                                                                                                                                                1.3450
                                                                                                                                                                                                                                                                 1.2202
                                                                                                                                                                       537.3
SON VEL.M/SEC
                                                       726.6
                                                                          700.9
                                                                                             674.0
                                                                                                              645.9
                                                                                                                                  615.4
                                                                                                                                                     575.3
                                                                                                                                                                                          507.6
                                                                                                                                                                                                             474.7
                                                                                                                                                                                                                               436.8
                                                                                                                                                                                                                                                  392.9
MOLE FRACTIONS
AR
                               0.00836 0.00836 0.00836 0.00636 0.00836 0.00836 0.00839 0.00859 0.00859 0.00859 0.00852 0.00844 0.00836
                            CISI
CH4
CO
C02
H2
H20(L)
H20
                              0,12200 0,12000 0,11755 0,11449 0,11070 0,10603 0,10164 0,10303 0,10812 0,11580 0,12474 0,13324 0,00191
NH3
                             0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,0000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0,000 0
                               0.70012 0.70012 0.70012 0.70012 0.70013 0.70028 0.70270 0.71179 0.71915 0.71909 0.71389 0.70735 0.70012
         CASE= 0 0/F= 12.5000
                                                                     F/A= 0.08000 PERCENT FUEL= 7.4074 PHI= 1.1723
P, ATM 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20
M, MOL HT
                              27.807
                                                      27.901
                                                                    27.963
                                                                                          28.001
                                                                                                              28.022
                                                                                                                                28.034
                                                                                                                                                  28.040
                                                                                                                                                                  28,043
                                                                                                                                                                                        28.044
                                                                                                                                                                                                           28.045
                                                                                                                                                                                                                             28.046
                                                                                                                                                                                                                                                 28.046
                                                                                                                                                                                                                                                                   28.046
CP, CAL/(G)(F) 0.5545
GAMMA (S) 1.1834
SON VEL MYSEC
                                                                                                                                                                     0.3499
                                                      0.4911
                                                                        0.4391
                                                                                           0.4021
                                                                                                              0.3783
                                                                                                                                0.3639
                                                                                                                                                   0.3553
                                                                                                                                                                                        0.3462
                                                                                                                                                                                                           0.3434
                                                                                                                                                                                                                              0.3409
                                                                                                                                                                                                                                                 0.3385
                                                                                                                                                                                                                                                                   0.3362
                                                                                           1,2264
                                                                                                                                                                      1,2549
                                                                                                                                                                                        1.2578
                                                      1,1968
                                                                        1.2121
                                                                                                              1.2377
                                                                                                                                1.2457
                                                                                                                                                   1.2511
                                                                                                                                                                                                           1.2602
                                                                                                                                                                                                                              1.2625
                                                                                                                                                                                                                                                 1.2647
                                                                                                                                                                                                                                                                  1.2671
SON VEL M/SEC
                                 . 995.3
                                                       981.3
                                                                          968.0
                                                                                             954.1
                                                                                                                938.8
                                                                                                                                  921.8
                                                                                                                                                     903.4
                                                                                                                                                                       883.9
                                                                                                                                                                                          863.6
                                                                                                                                                                                                             842.5
                                                                                                                                                                                                                               820.8
                                                                                                                                                                                                                                                  798.4
MOLE FRACTIONS
AR
                                0.00829 0.00832 0.00833 0.00834 0.00835
                                                                                                                              0.00835 0.00836 0.00836
                                                                                                                                                                                                       0.00836
                                                                                                                                                                                      0.00836
                                                                                                                                                                                                                           0.00836
                                                                                                                                                                                                                                              0.00836
                                                                                                                                                                                      0.05042
CO.
                                0.06172
                                                 0.05815
                                                                    0.05573 0.05417 0.05315
                                                                                                                              0.05241 0.05177 0.05112
                                                                                                                                                                                                        0.04962
                                                                                                                                                                                                                           0.04868
                                                                                                                                                                                                                                              0.04755
002
                              0.08639 0.09045
                                                                    0.09321 0.09477 0.09610
                                                                                                                              0.09690 0.09758 0.09824 0.09895
                                                                                                                                                                                                       0.09975 0.10070
                                                                                                                                                                                                                                            0.10182
н
                              0.00207 0.00140
                                                                    0.00093 0.00061 0.00039
                                                                                                                              0.00024 0.00014 0.00008 0.00004 0.00002 0.00001 0.00000
H2
                             0.01293 0.01227
                                                                      0.01199 0.01201 0.01223
                                                                                                                              0.01259 0.01306 0.01363 0.01431 0.01511 0.01605
                                                                                                                                                                                                                                              0.01717
H20
                              0.12412 0.12656
                                                                      0.12809 0.12891
                                                                                                          0.12922
                                                                                                                              0.12918 0.12889 0.12841 0.12779
                                                                                                                                                                                                       0.12702 0.12609
                                                                                                                                                                                                                                              0.12497
                                                                                                                                                                                                                                                                 0.12363
NO.
                              0.00368 0.00230
                                                                      0.00132 0.00071
                                                                                                                              0.00016 0.00007 0.00003 0.00001 0.00000 0.00000
                                                                                                                                                                                                                                              0.00000 0.00000
                                                                                                           0.00035
N2
                            0.69233 0.69537
0.00057 0.00027
                                                                      0.69740 0.69864 0.69935
                                                                                                                              0.69973 0.69993 0.70003 0.70008
                                                                                                                                                                                                       0.70010 0.70011
                                                                                                                                                                                                                                              0.70011
                                                                                                                                                                                                                                                                 0.70012
0
                                                                      0.00012 0.00005 0.00002 0.00001 0.00000 0.00000 0.00000
                                                                                                                                                                                                       0.00000 0.00000
                                                                                                                                                                                                                                              0.00000 0.00000
ОН
                              0.00571 0.00378 0.00236 0.00139 0.00078 0.00041 0.00020 0.00009 0.00004 0.00002 0.00001 0.00220 0.00114 0.00051 0.00020 0.00007 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000
                                                                                                                                                                                                                                              0.00000 0.00000
                                                                                                                                                                                                                                              0.00000 0.00000
```

ADD C(S) ADD H20(L)

```
F/A= 0.09000
                                                 PERCENT FUEL= 8.2569
             0 0/F= 11,1111
                                                                           PHI= 1.3189
P. ATM
                30,000
                         30.000
                                  30,000
                                           30,000
                                                   30,000
                                                            30,000
                                                                     30,000 30,000 30,000
                                                                                               30,000
                                                                                                        30,000
                                                                                                                  30.000
P. PSIA
                          440.9
                                            440.9
                440.9
                                  440.9
                                                    440.9
                                                             440.9
                                                                      440.9
                                                                               440.9
                                                                                       440.9
                                                                                               440.9
                                                                                                         440.9
                                                                                                                  440.9
                1500.0
                         1400.0
                                  1300.0
                                                                      900.0
                                                                              800.0
                                                                                                600.0
                                                                                                                  400.0
T, DEG K
                                           1200.0
                                                   1100.0
                                                            1000.0
                                                                                        700.0
                                                                                                         500.0
                                                                                                                           300.0
T. DEG F
                2240.3
                         2060.3
                                 1880.3
                                           1700.3
                                                  1520.3
                                                            1340.3
                                                                     1160.3
                                                                               980.3
                                                                                        800.3
                                                                                                620.3
                                                                                                         440.3
                                                                                                                  260.3
                                                                                                                            80.3
RHO, G/CC
              6.6567-3 7.1323-3 7.6810-3 8.3218-3 9.0837-3 1.0050-2 1.1389-2 1.3062-2 1.5067-2 1.7641-2 2.1191-2 2.9090-2 4.2193-2
M, MOL NT
              27.311
                         27.312
                                  27.312
                                           27.314
                                                   27.331
                                                            27,489
                                                                     28.037
                                                                              28.582
                                                                                       28.849
                                                                                               28.951
                                                                                                        28.981
                                                                                                                 31.827
CP, CAL/IGITED
              0.3404
                         0.3386
                                  0.3371
                                           0.3373
                                                   0.3517
                                                            0.4732
                                                                     0.5588
                                                                              0.4441
                                                                                       0.3425
                                                                                               0.2991
                                                                                                        0.2804
                                                                                                                 1.1544
                                                                                                                          0.3340
GAMMA (S)
                1.2719
                         1,2738
                                 1.2754
                                           1,2761
                                                   1,2700
                                                            1.2285
                                                                     1.2064
                                                                              1,2297
                                                                                       1.2742
                                                                                               1.3057
                                                                                                         1.3253
                                                                                                                 1.1799
                                                                                                                          1.2162
SON VEL.M/SEC
                 762.1
                          736.8
                                   710.5
                                            682.7
                                                    651.9
                                                             609.6
                                                                      567.4
                                                                               534.9
                                                                                        507.0
                                                                                                474.3
                                                                                                         436.0
                                                                                                                  351.1
MOLE FRACTIONS
AR
               0.00806
                        0.00806
                                0.00807 0.00607 0.00807 0.00812 0.00828 0.00837 0.00837 0.00833 0.00826 0.00809
                               CISI
              0.00000
                        0.00000
              0.00000
                        0.00000
CH4
              0.07610 0.07307
ĊO
C02
              0.08602 0.08904
H2
               0.03945 0.04246
H20 (L.)
               0.00000
                        0.00000
H20
              0,11483 0,11181
                                 0.10814 0.10364 0.09817 0.09263 0.09097 0.10102 0.11355 0.12368 0.13324 0.06733 0.00091
NH3
              0.00001 0.00002
                                0.00003 0.00005 0.00010 0.00019 0.00025 0.00024 0.00019 0.00012 0.00006 0.00001 0.00000
N2
               0.67552 0.67553
                                0,67553 0,67557 0,67595 0,67983 0,69335 0,70099 0,70123 0,69801 0,69198
                                                                                                                0.67760
                                                PERCENT FUEL= 8,2569 PHI= 1,3189
    CASE= 0 0/F= 11.1111
                                 F/A= 0.09000
P, ATM 40.000 40.000
P, PSIA 587.8 587.8
T DEG k 2800.0 2700.0
                                40,000 40.000 40.000 40.000 40.000 40.000 40.000
                                                                                              40.000
                                                                                                        40,000
                                                                                                                 40.000
                                                                                                                          40,000
                                                                                              537.8
                                587.8
                                          587.8
                                                   587.8
                                                             587.8
                                                                   587.8
                                                                             587.8
                                                                                      587.8
                                                                                                        587.8
                                                                                                                  587,8
                                2600.0
                                                            2300.0
3680.3
                                                                                              1900.0
T, DEG K
                2800.0
                         2700.0
                                           2500.0
                                                   2400.0
                                                                     2200.0 2100.0
                                                                                       2000.0
                                                                                                        1800.0
                                                                                                                 1700.0
                         4400.3
                                           4040.3
T, DEG F
               4580.3
                                 4220.3
                                                   3860.3
                                                                     3500.3
                                                                              3320.3
                                                                                       3140.3
                                                                                               2960.3
                                                                                                        2780.3
                                                                                                                 2600.3
                                                                                                                          2420.3
              47375-3 4,9198-3 5,1136-3 5,3211-3 5,5447-3 5,7869-3 6,0507-3 6,3392-3 6,6564-3 7,0069-3 7,3963-3 7,8314-3 8,3209-3 27,312 27,250 27,274 27,289 27,299 27,304 27,308 27,309 27,310 27,311 27,311 27,311 27,311 0,4448 0,4139 0,3922 0,3775 0,3676 0,3610 0,3564 0,3531 0,3505 0,3483 0,3462 0,3442 0,3423
RHO, G/CC
M. MOL NT
CP. CAL/(G)(K)
                         1,2281
                                  1,2375
                                                   1,2504
                                                            1.2545
                                                                     1.2577
                                                                                                1,2643
GAMMA (S)
                1.2169
                                           1.2449
                                                                              1.2602
                                                                                       1,2623
                                                                                                        1,2662
                                                                                                                 1,2681
                                                             937.4
SON VEL.M/SEC
                1020.3
                         1005.9
                                   990.4
                                            973.8
                                                    956.0
                                                                      917.8
                                                                               897.6
                                                                                        876.7
                                                                                                855.1
                                                                                                         833.0
                                                                                                                  810.1
MOLE FRACTIONS
AR
               0.00804
                        0.00805
                                 0.00805
                                          0.00806
                                                  0.00806
                                                           0.00806 0.00806
                                                                            0.00806
                                                                                      0.00806
                                                                                             0.00806
                                                                                                        0.00806
                                                                                                                0.00806
CO.
               0.09283
                        0.09160
                                 0.09065
                                         0.08983
                                                  0.08905
                                                           0.08826
                                                                   0.08739
                                                                             0.08641
                                                                                      0.08529
                                                                                              0.08399
                                                                                                       9.08248
                                                                                                                0.08071
                                                                                                                         0.07861
                        0.07015
C02
               0.06869
                                0.07125
                                         0.07216
                                                  0.07298
                                                           0.07382 0.07470
                                                                            0.07569 0.07682
                                                                                             0.07812 0.07963
                                                                                                                0.08140
Н
              0.00203
                        0.00141
                                 0.00096
                                         0.00064
                                                  0.00041
                                                           0.00025 0.00015
                                                                            0.00008 0.00004
                                                                                             0.00002 0.00001
                                                                                                                0.00000
H2
              0.02490
                        0.02507
                                 0.02543 0.02594
                                                  0.02657
                                                           0.02731 0.02816
                                                                            0.02914
                                                                                      0.03026
                                                                                              0.03156
                                                                                                       0.03307
                                                                                                                0.03485
H20
              0.12634
                        0.12724
                                 0.12761 0.12759
                                                  0.12727
                                                           0.12673 0.12600
                                                                            0.12509 0.12400
                                                                                              0.12272
                                                                                                       0.12122
                                                                                                                0.11944
                                                                                                                         0.11734
              0.00000
                        0.00000
                                 0.00000
                                         0.00000
                                                  0.00000 0.00000 0.00000
                                                                            0.00000
                                                                                      0.00000
                                                                                              0.00000
NH3
                                                                                                       0.00001
                                                                                                                10000.0
                                                 0.00011
Ν0
              0.00136
                        0.00079
                                 0.00043 0.00023
                                                           0.00005 0.00002 0.00001
                                                                                      0.00000
                                                                                              0.00000
                                                                                                       0.00000 0.00000
N2
               0.67239
                        0.67361
                                 0.67439 0.67487
                                                  0.67516 0.67533 0.67542 0.67547
                                                                                      0.67550
                                                                                              0.67551
                                                                                                        0.67552
                                                                                                                0.67552
                                 0.00003 0.00001
                                                  0.00000 0.00000
                                                                            0.00000 0.00000
0
                        0.00007
                                                                   0.00000
                                                                                              0.00000
                                                                                                       0.00000
                                                                                                                0.00000
                                                           0.00019 0.00009 0.00004 0.00002
ÔΗ
                        0.00188
                                0.00114 0.00066 0.00037
                                                                                              0.00001 0.00000
                                                                                                                0.00000
                                                           0.00000 0.00000 0.00000 0.00000
                        0.00014
                                0.00006 0.00002 0.00001
                                                                                              0.00000 0.00000
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ADD C(S) ADD H201L1

CASE≃	0 0/F=	10.0000	F/A= 0.	10000	PERCENT F	UEL≃ 9.	.0909 F	PHI= 1.465	4					
P, ATM	50.000	50,000	50.000	50.000	50,000	50.000	50,000	50,000	50,000	50.000	50.000	50.000	50,000	
P, PSIA	734.8	734.8	734.8	734.8	734.8	734.8	734.8	734.8	734.8	734.8	734.8	734.8	734.8	
T, DEG K	1500.0	1400.0	1300.0	1200.0	1100.0	1000.0	900.0	800.0	700.0	600.0	500.0	400.0	300.0	
T, DEG F	2240.3	2060.3	1880.3	1700.3	1520.3	1340.3	1160.3	980.3	800.3	620.3	440.3	260.3	80.3	
RHO, G/CC	1.0817-2	1.1590-2	1.2483-2	1.3532-2	1.4839-2	1.6660-2	1.9062-2	2,1821-2	2.5133-2	2.9409-2	3.5322-2	5.1271-2	7.1781-2	
M, MOL WT	26.627	26,628	26,632	26.650	26.788	27.341	28,155	28.649	28.873	28,959	28.984	33.657	35.341	
CP, CAL/(G)(K)	0.3460	0.3449	0.3457	0.3605	0.4684	0.6462	0.5944	0.4209	0.3373	0.3002	0.2835	0.7653	0.3332	
GAMMA (S)	1.275	1,2765	1.2770	1,2712	1,2359	1.1983	1.1954	1,2364	1.2755	1.3028	1,3202	1.1804	1,2081	
SON VEL, M/SEC	772.8	747.0	719.9	689.9	649.6	603.6	563.7	535.8	507.0	473.7	435.2	341.5	292.0	
MOLE FRACTIONS	5													
AR	0.00779	0.00779	0.00779	0.00760	0.00784	0.00800	0.00812	0.00815	0.00815	0.00810	0.00802	0.00780	0.00779	
CISI	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01406	0.02733	0.03559	0.04393	0.05426	0.08049	0.08148	
ÇH4	0.00000	0.00001	0.00005	0.00037	0.00291	0.01325	0.02110	0.02312	0.02277	0.01984	0.01470	0.00053	0.00000	
CO	0.10312	0.09955	0.09518	0.08941	0.07883	0.05448	0.02082	0.00494	0.00076	0.00006	0.00000	0.00000	0.00000	
C02	0.07087	0.07443	0.07878	0.08436	0.09331	0.11092	0.12541	0.12668	0.12283	0.11709	0.11015	0.09314	0.09251	
H2	0.05978	0.06329	0.06745	G.07197	0.07311	0.05930	0.03603	0.01797	0.00703	0.00195	0.00032	0.00001	0.00000	
H20+L+	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.12756	0.16510	
H20	0.10579	0.10225	0.09757	0.09283	0.08733	0.08374	0.09392	0.10865	0.12028	0.13037	0.14067	0.03717	0.00052	
NH3	0.00004	0.00006	0.00009	0.00015	0.00026	0.00035	0.00035	0.00031	0.00024	0.00016	0.00008	60000.0	0.00000	
N2	0.65263	0 65262	0.65268	0 65311	0.65643	0.66995	0.68019	0.68283	0.68235	0.67851	0.67179	0 65329	0.65260	

CASE= 0 0/F= P, ATM 10.000 P, PSIA 147.0 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.2560-3 M, MOL WT 28.858 CP, CAL//GIKK 0.4018 GAMMA (S) 1.2247 SON VEL, M/SEC 994.0	0.0000 F/A= 0.00000 10.000 10,000 10,000 147.0 147.0 147.0 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 1.3041-3 1.3555-3 1,4105-3 28.893 28.918 28.936 0.3830 0.3674 0.3546 1.3232 1,2397 1.2468 978.5 962.7 946.4	147.0 147.0 147.0 2400.0 2300.0 2200 3860.3 3680.3 3500 1.4699-3 1.5342-3 1.6042 28.947 28.955 28.99 0.3441 0.3355 0.32	.0 147.0 147.0 .0 2100.0 2000.0 .3 3320.3 3140.3 -3 1.6807-3 1.7648-3 1. 59 28.962 28.964 83 0.3221 0.3167 58 1.2715 1.2770	10,000 10,000 10,000 10,000 147.0 147.0 147.0 147.0 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 28.964 28.965 28.965 28.965 0.3117 0.3070 0.3026 0.2992 1,2824 1,2878 1.2933 1,2988 836.3 815.7 794.4 772.3
MOLE FRACTIONS AR CO 0.00027 CO2 0.00027 NO 0.03558 NO2 0.00006 N2 0.76020 0 0.00739 O2 0.18718	0.00930 0.00931 0.00931 0.00002 0.00001 0.00001 0.00028 0.00029 0.00629 0.03120 0.02700 0.02904 0.00006 0.00006 0.00006 0.76334 0.76612 0.76857 0.00496 0.09322 0.00202 0.19084 0.19399 0.19670	0.01937 0.01601 0.012 0.00005 0.00005 0.000 0.77073 0.77261 0.774 0.00122 0.00070 0.000	00 0.00000 0.00000 0 30 0.00030 0.00030 0 98 0.01030 0.00798 0 05 0.00004 0.00004 0 25 0.77566 0.77586 0 38 0.00020 0.00010 0	0.00932 0.00932 0.00932 0.00000 0.00000 0.00000 0.00000 0.00001 0.00030 0.00030 0.00030 0.00601 0.00438 0.00308 0.00207 0.00604 0.00003 0.00003 0.00002 0.77786 0.77869 0.77935 0.77985 0.00004 0.00002 0.00001 0.00000 0.20642 0.20725 0.20792 0.20843
CASE= 0 0/F= P, ATM 10.000 P, PSIA 147.0 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 2.3532-3 M, MOL WT 28.965 CP, CAL/(GIIK) 0.2939 GAMMA IS) 1.3044 SON VEL,M/SEC 749.4	0.0000 F/A= 0.00000 10.000 10.000 10.000 147.0 147.0 147.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 2.5213-3 2.7152-3 2.9415-3 28.965 28.965 28.965 0.2898 0.2856 0.2815 1.3102 1.3161 1.3223 725.6 700.8 674.9	147.0 147.0 147 1100.0 1000.0 900 1520.3 1340.3 1160 3.2069-3 3.5298-3 3.9220 28.964 28.964 28.96 0.273 0.273 0.26 1.3287 1.3357 1.34	.0 147.0 147.0 .0 800.0 700.0 .3 980.3 800.3 -3 4.4122-3 5.0426-3 5.64 28.964 28.964 81 0.2626 0.2569 40 1.3536 1.3644	10.000 10.000 10.000 10.000 147.0 147.0 147.0 147.0 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 8830-3 7.0596-3 8.8245-3 1.1766-2 28.964 28.964 28.964 28.964 0.2512 0.2461 0.2422 0.2402 1.3757 1.3865 1.3952 1.3999 486.8 446.1 400.3 347.2
MOLE FRACTIONS AR CO2 0.00032 NO 0.00131 NO2 0.00002 N2 0.78023 O2 0.20881	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00078 0.00043 0.00021 0.00002 0.00001 0.00001 0.78050 0.78057 0.78078 0.20908 0.20926 0.20937	0.00030 0.00030 0.000 0.00009 0.00004 0.000 0.00001 0.00001 0.000 0.78084 0.78087 0.780	30 0,00030 0,00030 0 01 0,00000 0,00000 0 00 0,00000 0,00000 0 89 0,78089 0,78089 0	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00030 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.78089 0.78089 0.78089 0.78049 0.20949 0.20949

CASE= 0 0/F=100.0000 P, ATM 15.000 15.000 P, PSIA 220.4 220.4 T, DEG k 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 3.5301-3 3.7823-3 M, MOL NT 28.967 28.967 CP, CAL//GITK) 0.2992 0.2949 GAMMA S1 1.2974 1.3031 SON VEL,M/SEC 747.4 723.6	220.4 220.4 220.4 1300.0 1200.0 1100.0 1880.3 1700.3 1520.3 4.0732-3 4.4127-3 4.8138-3 28.967 28.967 28.967 0.2906 0.2863 0.2820 1,3090 1.3150 1.3215	UEL= 0.9901 PHI= 0.1465 15.000 15.000 15.000 15.000 220.4 220.4 220.4 220.4 1000.0 900.0 800.0 700.0 1340.3 1160.3 980.3 800.3 5.2952-3 5.8835-3 6.6190-3 7.5645-3 28.967 28.967 28.967 28.967 0.2774 0.2723 0.2666 0.2606 1.3285 1.3368 1.3466 1.3574 617.5 587.7 556.1 522.2	15.000 15.000 15.000 15.000 220.4 220.4 220.4 220.4 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 8.8253-3 1.0590-2 1.3238-2 1.7962-2 28.967 28.967 29.479 0.2546 0.2492 0.2448 0.2966 1.3688 1.3799 1.3893 1.3225 485.5 445.0 399.4 334.5
MOLE FRACTIONS AR 0.00923 0.00923 C02 0.02088 0.02088 H201L1 0.00002 0.00002 N0 0.00120 N02 0.00002 N2 0.77262 0.77267 OH 0.00002 0.176641 0.17666	0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.01962 0.01962 0.01962 0.00039 0.00020 0.00009 0.00001 0.00001 0.00001 0.77303 6.77313 0.77318 0.00000 0.00000 0.00000	0.00923 0.00923 0.00923 0.00923 0.02088 0.02088 0.02088 0.02088 0.60000 0.00000 0.00000 0.00000 0.01962 0.01962 0.01962 0.01962 0.00003 0.00001 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.77321 0.77322 0.77323 0.77323 0.00000 0.00000 0.00000 0.00000 0.17701 0.17703 0.17703 0.17703	0.00923 0.00923 0.00923 0.00923 0.02088 0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.01735 0.01962 0.01962 0.01962 0.00227 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.77323 0.7323 0.00000 0.00000 0.00000 0.00000 0.17703 0.17703 0.17703 0.17703
CASE= 0 0/F=100.0000 P, ATM 20.000 20.000 P, PSIA 293.9 293.9 T, DEG K 2800.0 2700.0 T, DEG F 4580.3 4400.3 RHO, G/CC 2.5090-3 2.6058-3 M, MOL NT 28.824 28.866 CP, CAL/IGI(K) 0.4217 0.4009 GANNA (S) 1.2*56 1.22*36 SON VEL,M/SEC 990.9 975.2	293.9 293.9 293.9 2400.0 2500.0 2400.0 4220.3 4040.3 3860.3 2.7090-3 2.8196-3 2.9388-3 28.898 28.921 28.937 0.3832 0.3684 0.3562 1.2305 1.2378 1.2449	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 2300.0 2200.0 2100.0 2000.0 3680.3 3500.3 3320.3 3140.3	20,000 20,000 20,000 20,000 293.9 293.9 293.9 293.9 1900.0 1800.0 1700.0 1600.0 29.0.3 2780.3 2600.3 2420.3 37157-3 3.9223-3 4.1531-3 4.4127-3 28.965 28.966 28.967 28.967 0.3183 0.3131 0.3083 0.3037 1.2754 1.2809 1.2864 1.2919 834.0 813.5 792.3 770.3
MOLE FRACTIONS AR CO 0.00162 0.00107 CO2 0.01916 0.01974 H 0.00026 0.00015 H02 0.00003 0.00003 H2 0.00020 0.00014 H20 0.01618 0.01697 NO 0.03243 0.02843 NO2 0.00008 0.0007 N2 0.75315 0.75630 O 0.00478 0.00321 OH 0.00600 0.00477 O2 0.15693 0.15996	0.0068 0.00041 0.00024 0.02016 0.02044 0.02062 0.00008 0.00004 0.00002 0.00009 0.00006 0.00001 0.00009 0.00006 0.00004 0.01759 0.01811 0.01853 0.02461 0.02101 0.01767 0.00007 0.00007 0.00006 0.75906 0.76147 0.76357 0.00209 0.00131 0.00079 0.00369 0.00279 0.00204	0.00923 0.00923 0.00923 0.00923 0.00013 0.00007 0.00003 0.00001 0.02074 0.02081 0.02084 0.02086 0.00001 0.00000 0.00000 0.00000 0.00001 0.00001 0.00001 0.00000 0.00002 0.00001 0.00001 0.00000 0.01885 0.01910 0.01928 0.01941 0.01461 0.01185 0.00941 0.00729 0.00060 0.00065 0.00005 0.00005 0.76540 0.76698 0.76833 0.76947 0.00045 0.00025 0.00013 0.00006 0.00185 0.00100 0.00066 0.00041 0.16904 0.17064 0.17202 0.17319	0.00001 0.00000 0.00000 0.00000 0.02087 0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.01950 0.01955 0.01959 0.01961 0.00550 0.00401 0.00281 0.00189 0.00004 0.00004 0.00003 0.00003 0.77041 0.77119 0.77180 0.77227 0.00003 0.00001 0.00000 0.00000 0.00025 0.00014 0.00007 0.00000

P, ATM 30.000 P, PSIA 440.9 T, DEG K 1500.0 T, DEG F 2240.3	30.000 30.000 30.000 440.9 440.9 440.9 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	PERCENT FUEL= 1.9608 30,000 30,000 30,00 440.9 440.9 440.9 140.9 150.0 1	9 440.9 440.9 800.0 700.0 3 980.3 800.3 2 1.3239-2 1.5130-2 1 0 28.970 28.969 0 0.2704 0.2642 1 1.3399 1.3508	30.000 30.000 30.000 30.000 440.9 440.9 440.9 440.9 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 7.652-2 2.1183-2 2.6478-2 3.6698-2 28.970 28.970 28.970 30.106 0.2579 0.2522 0.2474 0.2809 1.3623 1.3737 1.3837 1.3219 484.3 444.0 398.6 330.9
MOLE FRACTIONS AR 0.00914 C02 0.04106 H20(L) 0.00000 H20 0.03886 N0 0.00108 N02 0.00003 N2 0.76517 OH 0.00002 O2 0.14464	0.00914 0.00914 0.00914 0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 0.03886 0.03887 0.03887 0.00065 0.00036 0.00018 0.00002 0.00002 0.00001 0.76539 0.76554 0.76563 0.00001 0.00000 0.00000 0.14487 0.14562 0.14511	0.00914 0.00914 0.0091 0.04106 0.04106 0.0410 0.00000 0.00000 0.0000 0.03887 0.03887 0.0388 0.00008 0.00003 0.0000 0.00001 0.00001 0.0000 0.76568 0.76570 0.7657 0.00000 0.00000 0.0000 0.14516 0.14519 0.1452	6 0.04106 0.04106 0.00000 0.00000 7 0.03887 0.03887 1 0.00000 0.00000 0 0.00000 0.00000 1 0.76571 0.76571 0 0.00000 0.00000	0.00914 0.00914 0.00914 0.00914 0.04106 0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 0.03776 0.03887 0.03887 0.03887 0.00111 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.76571 0.76572 0.76572 0.76572 0.00000 0.00000 0.00000 0.00000 0.14521 0.14521 0.14521 0.14521
CASE= 0 0/F= P, ATM 40.000 P, PSIA 587.8 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 5.0190-3 M, MOL HT 28.829 CP, CAL/IGI(K) 0.4245 GAMMA (S) 1.2*133 SON VEL,M/SEC 989.8	40.000 40.000 40.000 587.8 587.8 587.8 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3	PERCENT FUEL= 1.9608 40.000 40.000 40.00 587.8 587.8 587.8 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3 5.8780-3 6.1359-3 6.4164-28.940 28.951 28.95 0.3600 0.3501 0.341 1.2414 1.2478 1.253 925.2 907.9 889.	9	40.000 40.000 40.000 40.000 587.8 587.8 587.8 587.8 1900.0 1800.0 1700.0 1600.0 278.0 3 2780.3 2600.3 2420.3 28.968 28.969 28.969 28.970 0.3231 0.3180 0.3132 0.3087 1.2701 1.2754 1.2806 1.2858 832.3 811.7 790.4 768.4
MOLE FRACTIONS AR 0.00910 C0 0.00254 C02 0.3883 H02 0.00025 H2 0.00035 H20 0.03469 N0 0.02918 N02 0.0009 N2 0.74738 O 0.0305 OH 0.00702 O2 0.12801	0.00911 0.00912 0.00913 0.00167 0.00105 0.00063 0.03926 0.03992 0.04037 0.00013 0.00007 0.00003 0.00004 0.00003 0.00003 0.00023 0.00015 0.00009 0.03566 0.03645 0.03709 0.02557 0.02213 0.01889 0.00008 0.00008 0.00008 0.75029 0.75282 0.75503 0.00205 0.00133 0.00553 0.00425 0.00319 0.00553 0.00425 0.00319 0.13040 0.13259 0.13460	0.00913 0.00914 0.0091 0.00036 0.00020 0.0001 0.04066 0.04084 0.0409 0.00002 0.00001 0.0000 0.00002 0.00002 0.0000 0.0006 0.00003 0.0000 0.03759 0.03797 0.0382 0.01589 0.01314 0.0106 0.00007 0.00007 0.0000 0.75566 0.75862 0.7600 0.00050 0.00029 0.0001 0.00023 0.0015 0.0011 0.13641 0.13803 0.1394	0 0.00005 0.00002 4 0.04100 0.04104 0 0.00000 0.00000 1 0.00001 0.00001 2 0.00001 0.00006 6 0.03847 0.03862 7 0.00847 0.00657 6 0.00006 0.00005 5 0.76128 0.76231 0.09008 0.00004 3 0.00074 0.00047	0.00914 0.00914 0.00914 0.00914 0.00001 0.00000 0.00000 0.00000 0.04105 0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.03872 0.03878 0.03882 0.03885 0.00495 0.00361 0.00254 0.00170 0.00005 0.00004 0.00004 0.00003 0.76317 0.76387 0.76443 0.76485 0.00002 0.00001 0.00000 0.00004 0.00002 0.00001 0.00000 0.00004 0.14260 0.14332 0.14388 0.11432

CASE= 0 0/F= 33.33 P, ATM 50.000 50.0 P, PSIA 734.8 73 T, DEG k 1500.0 1400 T, DEG F 2240.3 206 RHO, G/CC 1.1769-2 1.2610 M, MOL NT 28.972 28.5 CP, CAL//GIIKI 0.3091 0.30 GAMMA (S) 1.2852 1.25 SON VEL,M/SEC 743.8 720	000 50,000 50,000 50,0 1,8 734,8 734,8 734,8 1,0 1300.0 1200.0 1100 1,3 1880.3 1700,3 1520 1,2 1,3580.2 1,4711-2 1,6049 1,72 28,972 28,972 28,9 1,72 0,3002 0,2957 0,29 1,005 1,2961 1,3020 1,300	.8 734.8 734.8 734.8 734.8 7 .0 1000.0 900.0 800.0 7 .3 1340.3 1160.3 980.3 8 .2 1.7654-2 1.9615-2 2.2067-2 2.52 .2 28.972 28.972 28.972 28.07 .0 0.2860 0.2804 0.2742 0.3 .3 13154 1.3238 1.3336 1.	.000 50.000 50.000 50.000 50.000 34.8 734.8 734.8 734.8 734.8 734.8 00.0 600.0 500.0 400.0 300.0 00.3 620.3 440.3 260.3 80.3 19-2 2423-2 3.5307-2 4.4640-2 6.2408-2 .972 28.972 28.972 29.304 30.726 2677 0.2612 0.2551 0.7311 0.2797 3445 1.3561 1.3678 1.2268 1.3093 19.7 483.2 443.0 373.1 326.0
MOLE FRACTIONS AR C02 0.06086 0.060 H20'L' 0.00000 0.005 N0 0.0075 0.005 N02 0.00003 0.005 N2 0.75786 0.758 OH 0.00002 0.000 02 0.11350 0.115	0.06086	86 0.06086 0.06086 0.06086 0.0 00 0.00000 0.00000 0.00000 0.0 07 0.00003 0.00001 0.00000 0.0 07 0.00003 0.00001 0.00000 0.0 01 0.00001 0.00000 0.00000 0.0 03 0.75833 0.75834 0.75835 0.7 00 0.00000 0.00000 0.00000 0.0	0505 0.00905 0.00905 0.00905 0.00905 5086 0.06086 0.06086 0.06086 0.06086 0000 0.00000 0.00000 0.01134 0.05709 5774 0.05774 0.05774 0.04640 0.00065 0000 0.00000 0.00000 0.00000 0.00000 0000 0.00000 0.00000 0.00000 0.00000 5835 0.75835 0.75835 0.75835 0000 0.00000 0.00000 0.00000 0.00000 1400 0.11400 0.11400 0.11400 0.11400
CASE= 0 0/F= 25.000 P, ATM 0.5000 0.55 P, PSIA 7.3 T, DEG K 2800.0 2700 T, DEG F 4580.3 4400 RHO, G/CC 6.0386-5 6.338 M, MOL HT 27.749 28.0 CP, CAL/I/GJ(K) 0.9591 0.98 GAMMA (S) 1.1421 1.14 SON VEL,M/SEC 978.9 95	0.5000 0.5000 0.5000 0.50 7.3 7.3 7.3 7.3 7.3 7.3 7.0 2600.0 2500.0 2400 1.3 4220.3 4040.3 3860 8.5 6.646.5 6.636.32 5 7.2915 1.0 28.569 28.76 1.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1 2.1	.3 7.3 7.3 7.3 .0 2300.0 2200.0 2100.0 20 .3 3680.3 3500.3 3320.3 31 .5 7.6355-5 8.0007-5 8.3931-5 8.81 .9 28.821 28.886 28.926 28 .1 0.4720 0.4203 0.3843 0.3 .1 1954 1.2126 1.2284 1.	5000 0.5000 0.5000 0.5000 0.5000 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 00.0 1900.0 1800.0 1700.0 1600.0 40.3 29.0.3 2780.3 2600.3 2420.3 97-5 9.280-5 9.8063-5 1.0384-4 1.1034-4 949 28.961 28.968 28.971 28.973 3602 0.3443 0.3334 0.3256 0.3196 2417 1.2524 1.2608 1.2677 1.2737 44.6 826.5 807.1 786.4 764.7
MOLE FRACTIONS AR C0 0.00859 0.008 C0 0.033E5 0.028 C02 0.04333 0.05 H 0.00878 0.009 H02 0.00001 0.000 H2 0.005161 0.05 N0 0.02172 0.018 N02 0.00001 0.000 N2 0.00001 0.000 N2 0.70848 0.718 OH 0.02239 0.018 OH 0.02239 0.018	\$82 0.01855 0.01237 0.007 199 0.06002 0.06678 0.071 255 0.00298 0.00159 0.000 001 0.00001 0.00001 0.000 133 0.00304 0.00202 0.001 177 0.06283 0.06680 0.069 101 0.01654 0.01410 0.011 1001 0.00001 0.00000 0.000 105 0.72693 0.73355 0.738 100 0.00906 0.00566 0.003 138 0.01455 0.01113 0.008	\$5 0.00438 0.00233 0.00114 0.0 \$2 0.07547 0.07770 0.07900 0.0 \$30 0.00037 0.00016 0.00006 0.0 \$2 0.00007 0.00000 0.00000 0.00 \$2 0.00075 0.00042 0.00022 0.0 \$34 0.00979 0.007453 0.0 \$34 0.00979 0.007453 0.0 \$36 0.74225 0.74486 0.74670 0.7 \$38 0.74225 0.74486 0.74670 0.7 \$39 0.00195 0.00107 0.00055 0.0 \$30 0.000588 0.00405 0.00268 0.0	0896 0.00896 0.00897 0.00897 0.00897 0052 0.00021 0.00008 0.00003 0.00001 7968 0.08002 0.08017 0.08024 0.08026 00002 0.00001 0.00000 0.00000 0.00000 0000 0.00000 0.00000 0.00000 0.00000 0752 0.07566 0.07593 0.7608 0.07617 0491 0.00370 0.0270 0.0010 0.00108 0000 0.00000 0.00000 0.00000 0.00000 00000 0.00000 0.00000 0.00000 0.00000 00000 0.00000 0.00000 0.00000 0.00000 0000 0.00000 0.00000 0.00000 0.00000 00000 0.00000 0.00000 0.00000 0.00000 00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

P, ATM 1.000 P, PS1A 14. T, DEG K 1500. T, DEG F 2240.	0 1.0000 1.0000 7 14.7 14.7 0 1400.0 1300.0 3 2060.3 1880.3 4 2.5224-4 2.7164-4 6 28.977 28.977 7 0.3141 0.3094 3 1.2794 1.2847	14.7 14. 1200.0 1100. 1700.3 1520. 2.9428-4 3.2103- 28.977 28.97 0.3047 0.299 1.2905 1.296	0 1.0000 7 14.7 0 1000.0 3 1340.3 4 3.5313-4 7 28.977 7 0.2943 8 1.3038	7619 PHI= 0.73 1.0000 1.0000 14.7 14.7 900.0 800.0 1160.3 980.3 3.9237-4 4.1411-4 28.977 28.977 0.2882 0.2816 1.3122 1.3220 582.1 550.9	1.0000 14.7 700.0 800.3	14.7 600.0 620.3 5.8855-4 7.0 28.977 2	1.0000 1.0000 1.0000 14.7 14.7 14.7 500.0 400.0 300.0 440.3 260.3 80.3 0627-4 8.8283-4 1.2548-3 28.977 28.977 30.889 0.2608 0.2547 0.9880 1.3568 1.3664 1.1596 441.2 396.3 306.0	,))))
MOLE FRACTIONS AR C02 0.0993 H20(L1 0.0000 H20 0.9943 N0 0.0006 N2 0.7436 OH 0.0000 02 0.0530	2 0.09932 0.09932 0 0.00000 0.00000 9 0.09440 0.09441 5 0.00039 0.00021 9 0.74383 0.74392 6 0.00002 0.00001	0.09932 0.0993 0.00000 0.0000 0.09442 0.0944 0.00011 0.0000 0.74397 0.7440 6.00000 0.0000	2 0.09932 0 0.00000 2 0.09442 5 0.00002 0 0.74402 0 0.00000	0.00898 0.00888 0.09932 0.09932 0.00000 0.00000 0.09442 0.09442 0.00001 0.00000 0.74402 0.74403 0.00000 0.00000 0.05335 0.05335	0.00888 0.09932 0.00000 0.09442 0.00000 0.74403 0.00000 0.05335	0.09932 0 0.00000 0 0.09442 0 0.00000 0 0.74403 0 0.00000 0	.00888 0.00888 0.00888 .09932 0.09932 0.09932 .00000 0.00000 0.06190 .09442 0.09442 0.03252 .00000 0.00000 0.00000 .74403 0.74403 0.74403 .00000 0.00000 0.00000 .05335 0.05335 0.05335)
CASE= 0 0/F P, ATM 1.500 P, PSIA 22. T, DEG K 2800. T, DEG F 4580. RHO, G/CC 1.8294- M, MOL WT 28.02 CP, CAL/IGI(K) 0.833 GAMMA (S) 1.148 SON VEL,M/SEC 976.	0 22.0 22.0 2700.0 2600.0 3 4400.3 4220.3 4 1.9151-4 2.0038-4 1 28.287 28.501 0 0.7423 0.6538 5 1.1539 1.1621	1.5000 1.500 22.0 22.0 2500.0 2400. 4040.3 3860. 2.0959-4 2.1921- 28.663 28.78 50.5720 0.501 1.1733 1.187	0 1.5000 0 22.0 0 2300.0 3 3680.3 4 2.2937-4 0 28.859 8 0.4461 3 1.2027	7619 PHI= 0.73 1.5000 1.5000 22.0 22.0 220.0 2100.0 3500.3 3320.3 2.4021-4 2.5192-4 28.910 28.940 0.4051 0.3756 1.2179 1.2314 877.8 862.0	1.5000 22.0 2000.0 3140.3	22.0 1900.0 2960.3 2.78-9-4 2.0 28.967 0.3445	1,5000 1,5000 1,5000 22.0 22.0 22.0 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 9423-4 3,1156-4 3,3105-4 28,972 28,975 28,976 0,3356 0,3289 0,3235 1,2583 1,2641 1,2693 806.2 785,3 763,4)
MOLE FRACTIONS AR 0.0085 C0 0.0322 C02 0.0628 H 0.0050 H02 0.0000 H2 0.0737 N0 0.0183 N02 0.0000 N2 0.7103 0 0.0101 OH 0.0186 O2 0.058	5 0.02491 0.01750 0 0.07205 0.08019 1 0.00296 0.00166 2 0.00001 0.00001 9 0.00412 0.00285 5 0.07911 0.08342 6 0.01585 0.01350 1 0.00001 0.00001 0 0.71839 0.72504 8 0.00670 0.00428 9 0.01489 0.01152	0 001147 0.0070 0.08677 0.0916 0.00088 0.0004 0.00001 0.0001 0.00137 0.0011 0.00138 0.094 0.00001 0.0000 0.73028 0.7342 0.000264 0.0015 0.000667 0.0065	1 0.00398 4 0.00494 1 0.00021 1 0.00001 7 0.00069 8 0.00780 1 0.00000 4 0.73711 7 0.00090 4 0.00449	0.00886 0.00887 0.00210 0.00103 0.09699 0.09817 0.00009 0.00004 0.00000 0.00000 0.0038 0.00020 0.0923 0.09502 0.00632 0.00502 0.00000 0.00000 0.73914 0.74057 0.00049 0.0025 0.00308 0.09203 0.05031 0.05078	0.00888 0.00047 0.09879 0.00001 0.00000 0.009361 0.00390 0.00000 0.74158 0.00012 0.00128 0.05127	0.00019 0 0.09910 0 0.00000 0 0.00000 0 0.00004 0 0.09395 0 0.00294 0 0.00000 0 0.74230 0 0.00006 0 0.000077 0	.00888 0.00888 0.00888 .00007 0.00002 0.00001 .09923 0.09929 0.09931 .00000 0.00000 0.00000 .00000 0.00000 0.00000 .00002 0.00001 0.00000 .09416 0.09429 0.09435 .00215 0.00151 0.00102 .00000 0.00000 0.00000 .74283 0.74321 0.74349 .00002 0.00001 0.00000 .00044 0.00023 0.00011 .05219 0.05254 0.05282	

ADD H2011 I

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CASE= 0 0/F= 16.6667
                                                       F/A= 0.06000 PERCENT FUEL= 5.6604 PHI= 0.8792
0.3038
                                                                                                 0.2983
                                                                                                                                                                                       0.2571
CP, CAL/IGITED
                           0.3228
                                        0.3183
                                                       0.3137
                                                                     0.3090
                                                                                                                0.2920
                                                                                                                              0.2851
                                                                                                                                            0.2779
                                                                                                                                                          0.2706
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                                                                                                                1.3069
GAMMA (S) 1.2699
                                       1.2746
                                                       1,2797
                                                                     1.2853
                                                                                   1.2915
                                                                                                 1.2985
                                                                                                                              1.3166
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                            739.3
                                        715.5
                                                                                                   610.4
                                                                                                                  580.9
                                                                                                                              549.7
                                                                                                                                             516.4
                                                                                                                                                            480.2
                                                                                                                                                                          440.4
                                                                                                                                                                                        395.6
                                                                                                                                                                                                      303.0
SON VEL. M/SEC
                                                        690.9
                                                                       665.2
                                                                                    638.4
MOLE FRACTIONS
                       0.00880 0.00880 0.00880
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AR
                                                                   0.00280
                                                                                                              0.00890 0.00880
C02
                       0.11801
                                       0.11801 0.11802
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0.11224 0.11224 0.11224
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H20 (L)
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                    0.11222
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0.73707 0.73707
H20
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NO
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N2
                      0.73684
                                       0.73694 0.73700
                                                                  0.73703 0.73705
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OH
                       0.00004
0.02365
                                       0.00002 0.00001 C.00000 0.00000
0.02374 0.02381 0.02384 0.02386
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       CASE= 0 0/F= 16.6667
                                                       F/A= 0.06000
                                                                                PERCENT FUEL= 5.6604 PHI= 0.8792
CASE= 0 0/F= 16,666/ F/A= 0.06000 PERCENT FULE= 5.6604 PHI= 0.8792
P, ATM 3,0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.00000 3.00000 3.00000 3.
GAMMA (S) 1.1509
SON VEL.M/SEC 977.0
                                                                  1.1734
                                        1.1559 1.1633
                                                                                   1.1862
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 SON VEL, M/SEC
                                        957.4
                                                        939.2
                                                                       922.4
                                                                                     906.9
                                                                                                   892.0
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                                                                                                                               861.2
                                                                                                                                              843.9
                                                                                                                                                            825.2
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MOLE FRACTIONS
AR
                       0.00852 0.00860 0.00866
                                                                  0.00870 0.00874
                                                                                               0.00876 0.00878
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                        0.03720 0.02827 0.02026
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CO
                0.07711 0.08703 0.09584
0.00379 0.00226 0.00128
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C02
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 H2
                        0.09256 0.09770 0.10184
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                                                                                0.10743
                                                                                               0.10914 0.11030
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 H20
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                       0.01422 0.01189 0.00982
                                                                    0.00803 0.00653
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N02
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N2 0,70684 0,71415 0,72024
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0H 0,01551 0,01207 0,00915
02 0,03214 0,02965 0,02732
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                                                                  0.00675 0.00486
                                                                                                0.00341 0.00232 0.00152 0.00096 0.00058
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                                                                    0.02535 0.02390
                                                                                                0.02300 0.02259 0.02252 0.02266 0.02289
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0 0/F= 14.6540
                             F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1.0000
P, ATM 4.0000
P, PSIA 58.8
T, DEG K 1500.0
T, DEG F 2240.3
                                   4.0000 4.0000 4.0000 4.0000 4.0000 4.0000
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                             1300.0
                                     1200.0
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                     2060.3
                            1880.3
                                    1700.3 1520.3
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                                                                                            440.3
                                                                                                            80.3
RHO, G/CC
            9,4178-4 1,0091-3 1,0867-3 1,1773-3 1,2843-3 1,4127-3 1,5697-3 1,7659-3 2,0182-3 2,3546-3 2,8255-3 3,5318-3 5,3455-3
M, MOL WT
                                                    28.981
                                                            28.981
                                                                          28.981 28.981
                                                                                           28.981
                                                                                                   28.981
              28,980
                     28.981
                             28,981
                                     28,981
                                             28.981
                                                                    28.981
CP, CAL/IGITED
                     0.3217
                             0.3170
                                                    0.3015
                                                            0.2951
                                                                    0.2880
                                                                           0.2806
                                                                                   0.2731
                                                                                           0.2658
                                                                                                   0.2590
            0.3266
                                     0.3122
                                             0.3071
                                                                                                   1.3600
GAMMA (S)
             1.2661
                     1.2710
                             1,2760
                                     1,2814
                                             1,2875
                                                    1.2944
                                                            1,3027
                                                                    1.3124
                                                                           1.3234
                                                                                   1.3353
                                                                                           1.3477
                                                                                            439.7
                                                                                                    395.1
SON VEL.M/SEC
              738.2
                      714.5
                              689.9
                                      664.2
                                             637.4
                                                     609.4
                                                             580.0
                                                                    548.8
                                                                            515.5
                                                                                    479.4
MOLE FRACTIONS
AR 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873 0,00873
          0.00000 0.00000
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00
                                                                                                 0.13316 0.13316
C02
                                                                                  0.13316 0.13316
H2
                                                                                  0.00000 0.00000 0.00000 0.00000
                                                                                  0.0000 0.00000 0.00000
H20(L)
                                                                                  0.12668 0.12668 0.12668
H20
           0.00002 0.00001
0.73139 0.73142
0.00001 0.00000
                            0.0000 0.00000 0.00000 0.00000 0.00000 0.00000
                                                                                  0.00000 0.00000
NO
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                                                                                  0.73143 0.73143 0.73143
N2
                            0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143
ОН
                            0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0 0.0000.0
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02
            0.00003 0.00001
                            0.0000 0.00000 0.00000 0.00000 0.00000
                                                                                  0.00000 0.00000 0.00000
                                           PERCENT FUEL= 6.3882 PHI= 1.0000
    CASE= 0 0/F= 14.6540
                            F/A= 0.06824
P, ATM 6.0000 6.0000
P, PSIA 88.2 88.2
T, DEG K 2800.0 2700.0
T, DEG F 4580.3 4400.3
                            6.0000 6.0000 6.0000 6.0000 6.0000 6.0000 6.0000 6.0000
                                                                                                  6.0000
                                            88.2 88.2 88.2 88.2
2400.0 2300.0 2200.0 2100.0
3860.3 3680.3 3500.3 3320.3
                            88.2
                                     88.2
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1930.0
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                                            2400.0
                                     2500.0
                                                                           2000.0
                            2600.0
                                                                                           1800.0
                                                                                                   1700.0
                           2600.0 2500.0
4220.3 4040.3
                                                                                  2960.3 2780.3
                                                                                                  2600.3
                                                                           3140.3
MOLE FRACTIONS
                                           0.00865 0.00868 0.00870 0.00871 0.00872
                                                                                  0.00873 0.00873 0.00873 0.00873
AR
             0.00846
                    0.00852
                            0.00858
                                    0.00862
          0.04195 0.03340
0.08704 0.09656
0.00289 0.00177
                            0.02567
                                           0.01355 0.00926 0.00606 0.00377 0.00222 0.00124 0.00064 0.00031 0.00013
CO
                                    0.01902
                            0.10510 0.11241 0.11840 0.12308 0.12657 0.12906 0.13074 0.13182 0.13246 0.13283 0.13301
C02
                           н
            0.00001 0.00001
H02
          H2
H20
011
            0.01004 0.00787
N2
            0.70353 0.70993
                            0,00096 0,00052 0,00026 0,00013 0,00006 0,00002 0,00001 0,00000 0,00000 0,00000 0,00000
0
            0.00280 0.00168
            0.01184 0.00887 0.00643 0.00449 0.00302 0.00195 0.00120 0.00071 0.00039 0.00020 0.00010 0.00004 0.00002
             0.01610 0.01307 0.01023 0.00771 0.00558 0.00388 0.00258 0.00163 0.00098 0.00056 0.00030 0.00014 0.00006
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ADD H20(L)
ADD CISI
                                                PERCENT FUEL= 6.5421
                 0/F= 14.2857
                                F/A= 0.07000
                                                                        PHI= 1.0258
     CASE=
                                10,000 10,000 10,000
                                                          10.000 10.000 10.000
                                                                                    10.000
                                                                                           10.000
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P. ATM
                10,000
                        10.000
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                        147.0
                                147.0
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P. PSIA
                147.0
                                                                                     700.0
               1500.0
                        1400.0
                                 1300.0
                                         1200.0
                                                  1100.0
                                                          1000.0
                                                                    900.0
                                                                            800,0
                                                                                             600.0
                                                                                                      500.0
                                                                                                               400.0
T, DEG K
                                                                                                      440.3
T, DEG F
               2240.3
                        2060.3
                                 1880.3
                                         1700.3
                                                  1520.3
                                                          1340.3
                                                                   1160.3
                                                                            980,3
                                                                                     800.3
                                                                                             620.3
                                                                                                               260.3
              2.3428-3 2.5101-3 2.7032-3 2.9284-3 3.1947-3 3.5141-3 3.9046-3 4.3930-3 5.0272-3 5.8794-3 7.0623-3 8.8296-3 1.3481-2
RHO, G/CC
                                                                   28,836
                                                                           28.838
                                                                                    28.876
                                                                                            28.947
                                                                                                     28.976
M. MOL NT
                28,836
                        28,836
                                 28,836
                                         28,836
                                                  28.836
                                                          28,836
CP, CAL/IGITKI
               0.3261
                        0.3226
                                 0.3188
                                         0.3146
                                                  0.3101
                                                          0.3052
                                                                   0.2994
                                                                           0.2945
                                                                                    0.3054
                                                                                            0.2873
                                                                                                     0.2694
                                                                                                             0.2596
                                                                                                             1.3591
                                                                                    1,3032
GAMMA (S)
               1.2679
                        1.2716
                                 1.2758
                                         1,2804
                                                  1,2857
                                                          1,2916
                                                                   1.2990
                                                                           1,3068
                                                                                            1.3217
                                                                                                     1.3433
                                                                                                                      1.2239
SON VEL.M/SEC
              740.5
                         715.5
                                  691.5
                                          665.6
                                                   638.6
                                                           610.3
                                                                    580.6
                                                                            549.0
                                                                                     512.5
                                                                                             477,3
                                                                                                      439.0
                                                                                                               394.9
MOLE FRACTIONS
AR
               0.00867 0.00867
                                0.00867 0.00867 0.00867
                                                         0.00867 0.00867
                                                                          0.00867 0.00869 0.00871
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CISI
              0.00000
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CH4
             0.00000
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                                                                 0.00000 0.00003 0.00068
                                                                                           0.00190
                                                                                                    0.00241
                                                                                                            0.00251
                       0.00692
                                0.00647 0.00590
                                                0.00517 0.00427
                                                                  0.00321 0.00205
                                                                                  0.00076
                                                                                           0.00009
                                                                                                   0.00000
                                                                                                            0.00000
CO
             0.00727
                                                                                                    0.13392
C02
                       0.12876 0.12921
                                       0.12978
                                                0.13050
                                                         0.13141
                                                                 0.13247 0.13361
                                                                                  0.13442
                                                                                           0.13421
                                                                                                            0.13385
             0.12840
H2
              0.00278
                       0.00313 0.00359
                                       6.00415
                                                0.00488 0.00578
                                                                 0.00683 0.00787 0.00652
                                                                                           0.00233 0.00042
                                                                                                            0.00003
                                       0.00000 0.00000 0.00000
                                                                 0.00000 0.00000 0.00000 0.00000 0.00000
H20(L)
              0.00000
                      0.00000 0.00000
                                                                                                            0.00000
              0.12630
                       0.12595
                                0.12550
                                        0.12493 0.12420 0.12330
                                                                 0.12224 0.12114 0.12132
                                                                                           0.12338
                                                                                                   0.12443
                                                                                                            0.12466
                                                                                                                    0.00301
H20
NH3
              0.00000
                       0.00000
                                0.00000
                                        0.00000
                                                0.00000 0.00000
                                                                 0.00001 0.00002 0.00004
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N2
               0.72657
                      0.72657
                                0.72657 0.72657 0.72657 0.72657
                                                                  0.72657 0.72661 0.72756 0.72934 0.73007
                                                                                                            0.73022 0.72657
                                              PERCENT FUEL= 6.5421
                                                                         PHI= 1.0258
    CASE= 0 0/F= 14,2857
                                 F/A= 0.07000
P. ATM
               15.000
                       15.000
                                15,000 15,000 15,000 15,000 15,000 15,000 15,000
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P. PSIA
               220.4
                         220.4
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             2800.0
4580.3
                                                          2300.0
                                2600.0
                                                                   2200.0
                                                                           2100.0
                                                                                    2000.0
                                                                                            1900.0
                                                                                                                      1600.0
T, DEG K
                        2700.0
                                         2500.0
                                                  2400.0
                                                                                                     1800.0
                                                                                                              1700.0
T, DEG F
             4580,3 4400,3 4220,3 4040,3 3860,3 3680,3 3500,3 3320,3 3140,3 2960,3 2780,3 2600,3 242),3 1,8434-3 1,9226-3 2,0059-3 2,0939-3 2,1872-3 2,2868-3 2,3936-3 2,5091-3 2,6352-3 2,7742-3 2,9284-3 3,1007-3 3,2945-3
RHO, G/CC
M, MOL MT 28.236
CP, CAL/(G)(K) 0.6524
                        28.397
                                                  28.716
                                                           28.772
                                                                   28.807
                                                                           28.824
                                                                                    28.832
                                                                                            28.834
                                                                                                     28.835
                                                                                                              28,836
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                                28.531
                                         28.636
                                0.5512
                                                           0.4211
                                                                   0.3864
                                                                           0.3612
                                                                                            0.3400
                                                                                                              0.3325
                                                                                                                      0.3294
                        0.6009
                                         0.5044
                                                  0.4610
                                                                                    0.3471
                                                                                                     0.3358
             1.1648
980.0
                        1,1706
                                                  1.1985
                                                           1.2118
                                                                   1.2268
                                                                           1.2404
                                                                                    1.2495
                                                                                             1.2549
                                                                                                     1.2584
                                                                                                              1.2615
                                                                                                                      1.2646
GAMMA (S)
                                         1.1873
SON VEL, M/SEC
                         962.0
                                 944.8
                                          928,3
                                                   912.6
                                                           897.5
                                                                    882.6
                                                                            866.8
                                                                                     848.9
                                                                                             829.2
                                                                                                      808.2
                                                                                                               786.4
MOLE FRACTIONS
AR
              0.00849 0.00854
                                0.00858 0.00861 0.00864
                                                         0.00865 0.00867 0.00867 0.00867 0.00867 0.00867
                                                                                                            0.00867
                                                                                                                     0.00867
                       0.02967
                                                          0.01156 0.00977 0.00884
                                                                                   0.00840 0.00816 0.00798
                                                                                                             0.00778
CO
              0.03678
                                0.02350
                                        0.01839
                                                 0.01441
              C02
                                                                                                            0.12789
                                                                                                                     0.12812
                                                                                                            0.00000
H
                                                                                                            0.00000 0.00000
H02
                                                                                                            0.00227 0.00250
H2
                                                                                                            0.12681 0.12658
H20
NO
                                                                                                            0.00000 0.00000
                                                                                                            0.72656
N2
                                                                                                            0.00000 0.00000
              0,00867 0,00634 0,00445 0,00299 0,00190 0,00112 0,00060 0,00029 0,00013 0,00005 0,00002 0,00001 0,00000
              0.01020 0.00768 0.00542 0.00353 0.00205 0.00101 0.00039 0.00011 0.00003 0.00000 0.00000
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ADD C(S)
ADD H201L1
        CASE= 0 0/F= 12.5000
                                             F/A= 0.08000
                                                                   PERCENT FUEL= 7,4074
                                                                                                    PHI= 1,1723
P. AIM
                      20.000
                                  20,000
                                             20.000
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P. PSIA
                      293.9
                                  293.9
                                             293.9
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                                                                     1100.0
T, DEG K
                      1500.0
                                  1400.0
                                             1300.0
                                                         1200.0
                                                                                  1000.0
                                                                                              900.0
                                                                                                          800.0
                                                                                                                      700.0
                                                                                                                                 600.0
                                                                                                                                              500.0
                                                                                                                                                          400.0
                                                                                                                                                                      300.0
T, DEG F
                      2240.3
                                  2060.3
                                                         1700.3
                                                                      1520.3
                                                                                 1340.3
                                              1880.3
                                                                                             1160.3
                                                                                                          980.3
                                                                                                                      800.3
                                                                                                                               620.3
                                                                                                                                             440.3
                                                                                                                                                          260.3
                                                                                                                                                                      80.3
RHO, G/CC
                   4.5571-3 4.8827-3 5.2583-3 5.6965-3 5.2146-3 6.8387-3 7.6358-3 8.7036-3 1.0039-2 1.1758-2 1.4126-2 1.8112-2 2.7555-2
M, MOL WT
                 28.046
                                  28.046
                                              28.046
                                                         28.046
                                                                      28.047
                                                                                 28.058
                                                                                             28,196
                                                                                                        28.568
                                                                                                                     28.833
                                                                                                                                28.945
                                                                                                                                            28,978
CP, CAL/IGITET
                   0.3338
                                  0.3313
                                              0.3289
                                                         0.3267
                                                                     0.3253
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                                                                                             0.4246
                                                                                                         0.4198
                                                                                                                     0.3391
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                                                                                                                                                        1,7930
GAMMA (S) 1.2695
SON VEL.M/SEC 751.4
                                                                                             1.2393
                                  1.2721
                                             1.2746
                                                         1.2770
                                                                     1.2790
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                                                                                                                                1.3092
                                                                                                                                                         1.1803
                                                                                                                                             1.3307
                                                                                                                                                                    1.2238
SON VEL, M/SEC
                                                                       645.8
                                                                                                                                 475.0
                                   726.6
                                               700.9
                                                           674.0
                                                                                  614.8
                                                                                              573.5
                                                                                                          537.6
                                                                                                                      508.2
                                                                                                                                              436.9
                                                                                                                                                          363.4
MOLE FRACTIONS
AR
        0.00836 0.00836 0.00836 0.00836 0.00836 0.00836 0.00840 0.00851 0.00859 0.00859 0.00852
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CISI
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CH4
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002
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HC .
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H20(L)
                                                                                                                                                       0.02428 0.14072
H20
                                                                                                                                                       0.11152 0.00143
NH3
                                                                                                                                                      0.00001
                                                                                                                                                                   0.00000
                    0.70012 0.70012
                                            0.70012 0.70012 0.70014 0.70039 0.70379 0.71306 0.71970 0.71920 0.71390
N2
                                                                                                                                                      0.70526 0.70012
       CASE= 0 0/F= 12.5000
                                              F/A= 0.08000
                                                                   PERCENT FUEL= 7.4074
                                                                                                     PHI= 1,1723
P. ATM
                      30.000
                                  30,000
                                             30,000
                                                         30.000 30.000
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P. PSIA
                                                                                             440.9
                      440.9
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                                                                                                                                 410.9
                                                                                                                                             440.9
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                                                                                                                                                                    440.9
             2800.0
4580.3
3.6370-3
27.855
T, DEG K
                                             2600.0
                                                         2500.0
                                                                      2400.0
                                                                                 2300.0
                                                                                                                     2000.0
                                  2700.0
                                                                                            2200.0
                                                                                                         2100.0
                                                                                                                                1900.0
                                                                                                                                            1800.0
                                                                                                                                                        1700.0
                                                                                                                                                                    1600.0
T, DEG F
                                  4400.3
                                            4220.3
                                                                                 3680.3
                                                                                             3500.3
                                                                                                                                2960.3
                                                         4040.3
                                                                      3860.3
                                                                                                         3320.3
                                                                                                                     3140.3
                                                                                                                                            2780.3
                                                                                                                                                        2600.3
                                                                                                                                                                    2420 3
RHO, G/CC
                   3.6370-3 3.7821-3 3.9345-3 4.0962-3 4.2694-3 4.4565-3 4.6599-3 4.8822-3 5.1266-3 5.3965-3 5.6964-3 6.0315-3 6.4085-3
M, MOL WT
                                  27.931
                                             27,980
                                                         28.010
                                                                     28.027
                                                                                 28,036
                                                                                             28.041
                                                                                                         28.043
                                                                                                                     28,045
                                                                                                                                28.045
                                                                                                                                            28.046
                                                                                                                                                        28.046
                                                                                                                                                                    28.046
CP, CAL/(G)(K) 0.5195
                                  0.4645
                                              0.4215
                                                         0.3916
                                                                     0.3726
                                                                                 0.3610
                                                                                             0.3538
                                                                                                         0.3492
                                                                                                                     0.3459
                                                                                                                                0.3432
                                                                                                                                            0.3408
                                                                                                                                                        0.3385
                                                                                                                                                                    0.3362
GAMMA (S) 1,1906
SON VEL,M/SEC 997.6
                                             1,2185
                                                                                                                     1.2580
                                  1.2043
                                                          1.2311
                                                                     1.2406
                                                                                 1,2474
                                                                                             1.2520
                                                                                                         1.2554
                                                                                                                                 1.2603
                                                                                                                                             1,2625
                                                                                                                                                        1.2648
                                                                                                                                                                    1.2671
                                   983.8
                                               970.3
                                                           955.8
                                                                       939.8
                                                                                  922.4
                                                                                               903.7
                                                                                                          884.1
                                                                                                                      863.7
                                                                                                                                  842.6
                                                                                                                                              820.8
                                                                                                                                                         798.4
                                                                                                                                                                     775.3
MOLE FRACTIONS
AR 0.00830 0.00832 0.00834 0.00835 0.00835 0.00836 0.00836 0.00836 0.00836 0.00836 0.00836
                                                                                                                                                      0.00836
                                                                                                                                                                   0.00836
                               0.05719 0.05521
                                                                                                                                                      0.04755
CO
                  0.06015
                                                        0.05392
                                                                   0.05304
                                                                                0.05236
                                                                                          0.05175 0.J5112
                                                                                                                   0.05042
                                                                                                                               0.04962
                                                                                                                                          0.04868
                                                                                                                                                                   0.04621
                  0.08821 0.09157 0.09382 0.09527 0.09623 0.09696 0.09760 0.09824 0.09895 0.09975 0.10070 0.10182 0.10317 0.00166 0.00113 0.00076 0.00050 0.00032 0.00020 0.00012 0.00007 0.00004 0.00002 0.00001 0.00000 0.00000
C02
H
H2
           0.01248 0.01200 0.01185 0.01194
                                                                   0.01220
                                                                              0.01258 0.01306 0.01363 0.01431 0.01511 0.01605 0.01717 0.01852
                                                                                           0.12893 0.12843 0.12780 0.12702 0.12609 0.12497 0.12363
H20
                  0.12547 0.12743 0.12861 0.12921 0.12938
                                                                                0.12926
        NO .
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N2.
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ADD CISI
ADD H20(L)
                  O/F= 11,1111
                                   F/A= 0.09000
                                                    PERCENT FUEL= 8.2569
                                                                               PHI= 1.3189
                                   40.000
                                             40.000
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P. ATM
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P. PSIA
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T, DEG K
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                 1500.0
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                                   1300.0
                                             1200.0
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T, DEG F
                 2240.3
                          2060.3
                                   1880.3
                                             1700.3
                                                      1520.3
                                                               1340.3
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RHO, G/CC
              8,8757-3 9,5097-3 1,0242-2 1,1096-2 1,2117-2
                                                               .3437-2 1.5239-2 1.7447-2 2.0102-2 2.3525-2 2.8255-2 3.
                                                                                                                       9680-2 5.6274-2
                 27.312
M, MOL NT
                          27.312
                                   27.313
                                             27.316
                                                      27.343
                                                               27.565
                                                                        28.135
                                                                                  28,632
                                                                                           28.867
                                                                                                    28.956
                                                                                                              28.982
                                                                                                                       32,560
                                                                                                                                34.632
CP, CAL/IGITET
                 0.3404
                          0.3386
                                   0.3373
                                             0.3385
                                                      0.3627
                                                               0.5038
                                                                        0.5430
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                                                                                                    0.2971
                                                                                                              0.2800
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GAMMA (S)
                                                                                                    1.3073
                1.2719
                          1.2738
                                   1.2754
                                             1.2756
                                                      1.2653
                                                               1,2214
                                                                        1.2090
                                                                                  1.2355
                                                                                           1.2779
                                                                                                              1.3257
                                                                                                                       1.1832
                                                                                                                                1.2180
SON VEL.M/SEC
                762.1
                           736.8
                                    710.4
                                              682.6
                                                       650.6
                                                                607.0
                                                                          567.1
                                                                                   535.7
                                                                                            507.6
                                                                                                     474.6
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MOLE FRACTIONS
AR
                0.00806 0.00806
                                  0.00807 0.00867
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0.06938 0.06479
CH4
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C02
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                                                              0.11403
               0.08602
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                                                                                          0.13096
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                                          C.05048
H2
               0.03945
                         0.04246
                                  0.04610
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                                                              0.05311
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H20.1L1
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H20
                         0.11181
                                  0.108:3
                                           0.10364
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NH3
               0.00002
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N2
               0.67553 0.67553
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                                                    0.67625 0.68168
                                                                       0.69577
                                                                                 0.70179 0.70156
                                                                                                   0.69810 0.69199
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     CASE = 0 0/F = 11,1111
                                   F/A = 0.09000
                                                    PERCENT FUEL= 8.2569
                                                                              PHI= 1.3189
P, ATM
                 50.000
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P, PSIA
                 734.8
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                                                               2300.0
T, DEG K
                 2800.0
                          2700.0
                                   2600.0
                                             2500.0
                                                      2400.0
                                                                        2200.0
                                                                                  2100.0
                                                                                           2000.0
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T, DEG F
                 4580.3
                          4400.3
                                   4220.3
                                             4040.3
                                                      3860.3
                                                               3680.3
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                                                                                                                                2420.3
              5.9243-3 6.1513-3 6.3929-3 6.6519-3 6.9312-3 7.2339-3 7.5635-3 7.9241-3 8.3206-3 8.7587-3 9.2453-3 9.7892-3 1.0401-2 27.323 27.257 27.278 27.292 27.300 27.305 27.308 27.310 27.310 27.311 27.311 27.311 27.311
RHO, G/CC
M, MOL WT
CP, CAL/IGITED
               0.4349
                          0.4074
                                   0.3882
                                             0.3751
                                                      0.3663
                                                               0.3602
                                                                        0.3560
                                                                                  0.3529
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                                                                                                    0.3482
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                                                      1.2512
                          1,2308
                                                               1.2550
                                                                        1.2579
                                                                                                    1.2643
GAMMA (S)
                                   1,2394
                                             1,2461
                                                                                  1.2603
                                                                                           1,2624
                                                                                                              1.2662
                                                                                                                       1.2681
                                                                                                                                1,2700
SON VEL, M/SEC
                 1021.6
                          1006.8
                                    991.1
                                              974.2
                                                       956.3
                                                                937.5
                                                                                   897.6
                                                                                            876.7
                                                                                                     855.2
                                                                                                               833.0
                                                                                                                        810.1
MOLE FRACTIONS
                0.00804
AR
                         0.00805
                                  0.00806
                                            0.00806
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CO
                0.09263
                         0.09150
                                  0.09059
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                                                                       0.08739
                                                                                 0.08641
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                                                                                                   0.08399
                                                                                                            0.08248
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C02
              0.06896
                         0.07029
                                  0.07132
                                           0.072:9
                                                     0.07300
                                                              0.07382 0.07471
                                                                                 0.07569
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               0.00181
                         0.00126
                                  38000.0
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H
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H2
               0.02483
                         0.02503
                                  0.02542
                                           0.02593
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                                                              0.02731 0.02816 0.02914
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H20
                0.12674
                         0.12748
                                 0.12776
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                                                              0.12676
                                                                       0.12601 0.12509
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                                                                                                            0.12121
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NH3
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NO
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N2
                0.67274
                         0.67382
                                  0.67452
                                            0.67494
                                                     0.67520
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CASE= 0 0/F= P, ATM 15.000 P, PSIA 220.4 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.8853-3 M, MOL WT 28.878 CP, CAL//GI(K) 0.3911 GAMMA (S) 1.2287 SON VEL,M/SEC 995.3	15,000 15,000 15,000 220.4 220.4 220.4 2700.0 2600.0 2500.0 4400.3 4220.3 4040.	0 15 000 15 000 15 000 120.4 220.4 220.4 220.4 0 2400.0 2300.0 2200.0 3 3860.3 3680.3 3500.3 3 2.2051-3 2.3015-3 2.4064-3 1 28.951 28.957 28.961 0.3416 0.3339 0.3274 8 1.2550 1.2609 1.2665	PHI = 0.0000 15.000 15.000 15.00 220.4 220.4 220. 2100.0 2000.0 1900. 3320.3 3140.3 2960. 2.5211-3 2.6473-3 2.7867-28.963 28.964 28.96 0.3216 0.3164 0.311 1.2719 1.2772 1.282 875.7 856.3 836.	4 220.4 220.4 220.4 220.4 1600.0 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 3 2.9415-3 3.1146-3 3.3092-3 4 28.965 28.965 28.965 0.2982 5 1.2879 1.2933 1.2988
MOLE FRACTIONS AR 0.00929 C0 0.00002 C02 0.00027 N0 0.03567 N02 0.76068 0 0.00604 02 0.18794	0.00002 0.00001 0.0000 0.00028 0.00029 0.0002 0.03124 0.02703 0.0230 0.00008 0.00007 0.0000	1 0.00000 0.00000 0.00000 2 0.00030 0.00030 0.00030 3 0.01601 0.01298 4 0.00007 0.00006 0.00006 5 0.7001 0.77266 0.77427 6 0.00099 0.00057 0.00031	0.00932 0.00932 0.0093 0.00000 0.00000 0.0000 0.00030 0.00030 0.0003 0.01030 0.0098 0.0060 0.00005 0.00005 0.0000 0.77567 0.77686 0.7778 0.00016 0.00008 0.0000 0.20419 0.20540 0.2064	0 0.00000 0.00000 0.00000 0 0.00030 0.00030 0.00030 1 0.00438 0.00308 0.00207 4 0.00004 0.00004 0.00003 7 0.77869 0.77935 0.77985 3 0.00001 0.00001 0.00000
CASE= 0 0/F= P, ATM 15.000 P, PS1A 220.4 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 3.5298-3 M, MOL WI 28.965 CP, CALI/(G)(K) 0.2939 GAMMA (S) 1.30044 SON VEL,M/SEC 749.4	15.000 15.000 15.000 220.4 220.4 220.4 1400.0 1300.0 1200.0 2060.3 1880.3 1700. 3.7820-3 4.0729-3 4.4123-	0 15.000 15.000 15.000 15.000 220.4 220.4 220.4 0 1100.0 1000.0 900.0 3 1520.3 1340.3 1160.3 3 4.8134-3 5.2947-3 5.8830-3 5 28.964 28.964 28.964 0.2773 0.2730 0.2681 3 1.3287 1.3357 1.3440	FHI = 0.0000 15.000	4 220.4 220.4 220.4 500.0 400.0 300.0 3 440.3 260.3 80.3 3 1.0589-2 1.3237-2 1.7649-2 4 28.964 28.964 28.964 2 0.2461 0.2422 0.2402 7 1.3865 1.3952 1.3999
MOLE FRACTIONS AR 0.00932 C02 0.00030 N0 0.00131 N02 0.00003 N2 0.78023 U2 0.20881	0.00030 0.00030 0.0003 0.00078 0.00043 0.0002	0 0.00030 0.00030 0.00030 1 0.00009 0.00004 0.00001 1 0.00001 0.00001 0.60000 3 0.78084 0.78087 0.78089	0.00932 0.00932 0.0093 0.00030 0.00030 0.0003 0.00000 0.00000 0.0000 0.00000 0.00000 0.0000 0.78089 0.78089 0.7808 0.20948 0.20949 0.2094	0 0.00030 0.00030 0.00030 0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000 9 0.78089 0.78089 0.78089

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F/A= 0.01000 PERCENT FUEL= 0.9901 PHI= 0.1465
       CASE= 0 0/F=100.0000
P, ATM
                       20,000
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P, PSIA
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                                                                        1100.0
T, DEG K
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2240.3
-219-3 5
                       1500.0
                                   1400.0
                                                1300.0
                                                            1200.0
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T. DEG F
                                                1880.3
                                                            1700.3
                                                                        1520.3
                                                                                     1340.3
                                                                                                 1160.3
                                   2060.3
                                                                                                               980.3
                                                                                                                           800.3
                                                                                                                                       620.3
                                                                                                                                                    440.3
                                                                                                                                                                 260.3
                                                                                                                                                                             80.3
RHO, G/CC 4.7069-3 5.0431-3 5.4310-3 5.8836-3 6.4184-3 7.0602-3 7.8447-3 8.8253-3 1.0086-2 1.17657-2 1.7651-2 2.3964-2 M, MOL WI 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967 28,967
GAMMA (S) 1.2975
SON VEL.M/SEC 747.4
                                                                                     1.3285
                                                                                                                          1.3574
                                                                                                                                       1.3688
                                                                                                                                                   1.3799
                                                                                                                                                               1.3893
                                                                                                                                                                           1.3327
                                   1.3031
                                                1.3090
                                                            1.3150
                                                                        1.3215
                                                                                                 1.3368
                                                                                                              1.3465
                                                                                                                            522.2
                                     723.6
                                                 698.9
                                                             673.0
                                                                          645.9
                                                                                      617.5
                                                                                                   587.7
                                                                                                               556.1
                                                                                                                                        485.5
                                                                                                                                                    445.0
                                                                                                                                                                 399.4
                                                                                                                                                                             335.7
MOLE FRACTIONS
                     0.00923 0.00923 0.00923 0.00923 0.00923 0.00923 0.00923
                                                                                                                         0.00923 0.00923
                                                                                                                                                 0.00923
                                                                                                                                                              0.00923 0.00923
AR
C02
                     0.02088 0.02088
                                             0.02088
                                                           0.02088
                                                                      0.02088
                                                                                   0.02088 0.02088
                                                                                                            0.02088
                                                                                                                         0.02088 0.02088
                                                                                                                                                 0.02088
                                                                                                                                                              0.02088
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                    0.00000 0.00000
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                                                          0.00000 0.00000
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                                                                                                            0.00000
                                                                                                                         0.00000 0.00000
                                                                                                                                                 0.00000
                                                                                                                                                              0.00000
                                                                                                                                                                         0.01792
H20(L)
                    0.01962 0.01962 0.01962
                                                                                   0.01962 0.01962
                                                                                                                         0.01962 0.01962
                                                                                                                                                 0.01962
                                                                                                                                                              0.01962 0.00170
H20
                                                          0.01962 0.01962
                                                                                                            0.01962
                    0.00120 0.00072 0.00039 0.00020 0.00009
                                                                                   0.00003 0.00001
                                                                                                            0.00000 0.00000 0.00000
                                                                                                                                                 0.00000
                                                                                                                                                              0.00000 0.00000
NO
                    0.00003 0.00002
                                             0.00002
                                                          0.00001 0.00001
                                                                                    0.00001 0.00000
                                                                                                           0.00000 0.00000 0.00000
                                                                                                                                                 0.00000
                                                                                                                                                              0.00000
                                                                                                                                                                         0.00000
N02
                                                                                   0.77321 0.77322
                                                                                                           0.77323 0.77323 0.77323
                                                                                                                                                0.77323 0.77323 0.77323
N2
                    0.77262 0.77287
                                             0,77303 6.77313 0.77318
OH
                     0.00002 0.00001 0.00000 0.00000 0.00000
                                                                                  0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000
                     0.17640 0.17665 0.17662 0.17692 0.17698
                                                                                  0.17701 0.17702 0.17703 0.17703 0.17703 0.17703 0.17703
02
        CASE= 0 0/F=100.0000
                                                                                                          PHI= 0.1465
                                               F/A= 0.01000
                                                                      PERCENT FUEL= 0.9901
P, ATM
                       30,000
                                                30,000
                                                            30,000 30,000
                                                                                     30.000
                                                                                               30.000 30.000 30.000
                                                                                                                                      30,000
                                                                                                                                                   30,000
                                                                                                                                                                30.000
                                 30.000
                                                                                     440.9
P. PSIA
                  440.9
                                    440.9
                                                440.9
                                                            440.9
                                                                         440.9
                                                                                                 440.9
                                                                                                               440.9
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                                                                                                                                      440.9
                                                                                                                                                    440.9
                                                                                                                                                               440.9
                                                                         2400.0
                                                                                                                                                   0.0081
                       2800.0
                                  2700.0
                                                2600.0
                                                            2500.0
                                                                                     2300.0
                                                                                                 2200.0
                                                                                                              2100.0
                                                                                                                          2000.0 1900.0
                                                                                                                                                               1700.0
                                                                                                                                                                           1600.0
T, DEG K
                       4580.3
                                   4400.3
                                                            4040.3
                                                                         3860.3
                                                                                     3680.3
                                                                                                 3500.3
                                                                                                              3320.3 3140.3
                                                                                                                                      29.0.3
                                                                                                                                                   2780.3
                                                                                                                                                                2600.3
                                                                                                                                                                            2420.3
T, DEG F
                                                4220.3
                    3.7665-3 3.9109-3 4.0650-3 4.2305-3 4.4088-3 4.6020-3 4.8122-3 5.0421-3 5.2947-3 5.5736-3 5.8834-3 6.2296-3 6.6190-3
RHO, G/CC
              28.846
                                 28.882
                                                28,909
                                                            28,928 28,942
                                                                                     28.951
                                                                                                 28.958
                                                                                                              28.962
                                                                                                                          28.964
                                                                                                                                      28.966
                                                                                                                                                   28.967
                                                                                                                                                               28.967
                                                                                                                                                                            28,967
M. MOL WT
                                                                                                              0.3294
CP, CAL/(G)(K)
                    0,4098
                                  0.3919
                                                0.3767
                                                            0.3638
                                                                        0.3530
                                                                                     0.3439
                                                                                                0.3361
                                                                                                                          0.3234
                                                                                                                                     0.3180
                                                                                                                                                   0.3129
                                                                                                                                                               0.3082
                                                                                                                                                                            0.3036
                   1.2196
                                                                                    1.2528
                                                                                                 1.2588
                                                                                                                                     1.2756
                                                                                                                                                               1.2865
GAMMA (S)
                                 1.2265
                                                1,2333
                                                            1,2401
                                                                        1.2466
                                                                                                             1.2645
                                                                                                                         1.2701
                                                                                                                                                  1.2810
                                                                                                                                                                          1.2919
SON VEL, M/SEC
                    992.1
                                                                          927.1
                                                                                      909.7
                                                                                                                          853.9
                                   976.4
                                                 960.3
                                                              944.0
                                                                                                   891.7
                                                                                                               873.1
                                                                                                                                       834.1
                                                                                                                                                    813.5
                                                                                                                                                                 792.3
                                                                                                                                                                           770 3
MOLE FRACTIONS
AR
                     0.00919 0.00920 0.00921 0.00922 0.00922 0.00923 0.00923 0.00923 0.00923 0.00923 0.00923 0.00923
CO
                     0.00134 0.00088 0.00056
                                                          0.00034
                                                                       0.00019 0.00011 0.00005 0.00003
                                                                                                                         0.00001 0.00000
                                                                                                                                                 0.00000 0.00000 0.00000
C02
                     0.01945 0.01994 0.02028
                                                          0.02052 0.02067 0.02076 0.02082 0.02085
                                                                                                                         0.02087 0.02088
                                                                                                                                                 0.02088 0.02088
                                                         0.00003 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
н
                     0.00019 0.00011 0.00006
                                                                                                                                                 0.00000 0.00000 0.00000
H02
                     0.00003 0.00003 0.00002
                                                                                                                                                 0.00000 0.00000 0.00000
H2
                     0.00017
                                  0.00011 0.00008
                                                          0.00005 0.00003 0.00002 0.00001 0.00001
                                                                                                                         0.00000 0.00000
                                                                                                                                                 0.00000 0.00000 0.00000
                                                          0.01826 0.01864 0.01893 0.01915 0.01931
                                                                                                                         0.01943 0.01951
                                                                                                                                                 0.01956 0.01959
                                  0.01721 0.01779
                                                                                                                                                                         0.01961
H20
                     0.01652
                                                          0.02102 0.01767 0.01461 0.01185 0.00941
                                                                                                                                                 0.00401
                                                                                                                                                              0.00281 0.00189
                     0.03249
                                  0.02847 0.02463
                                                                                                                         0.00729 0.00550
NO
                                                                                   0.00007 0.00007 0.00006
                                                                                                                         0.00006 0.00005
                                                                                                                                                 0.00005
                                                                                                                                                              0.00004
N02
                    0.00009
                                  0.00009
                                             0.00009
                                                           0.00008
                                                                       0.00008
                                                                                                                                                                         0.00004
                                                                                                                                    0.77042
                    0.75371
                                  0.75669 0.75932
                                                           0.76164
                                                                       0.76368
                                                                                   0.76547 0.76702 0.76835
                                                                                                                         0.76948
                                                                                                                                                 0.77119
                                                                                                                                                             0.77180
                                                                                                                                                                          0.77227
N2
                  0.00391 0.00262
                                             0.00171
                                                           0.00107
                                                                       0.00064
                                                                                   0.00037 0.00020 0.00010
                                                                                                                         0.00005
                                                                                                                                    0.00002
                                                                                                                                                 0.00001
                                                                                                                                                              0.00000
                                                                                                                                                                          0.00000
0
                                                                                   0.00131 0.00090 0.00059
OH
                    0.00548 0.00434
                                             0.00336
                                                           0.00253 0.00185
                                                                                                                         0.00037 0.00022
                                                                                                                                                 0.00013 0.00007
                                                                                                                                                                          0.00003
                     0.15741 0.16030 0.16290
                                                           0.16522 0.16728
                                                                                   0.16910 0.17068 0.17204 0.17320 0.17416
                                                                                                                                                  0.17494 0.17557
                                                                                                                                                                          0.17605
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```
CASE=
                0/F= 50.0000
                                F/A= 0.02000
                                               PERCENT FUEL= 1.9608
                                                                        PHI= 0.2931
P, ATM
                                                        40.000
                                                                           40,000 40,000
                                                                                          40.000
                                                                                                     40.000
                                                                                                             40.000
               40.000
                        40,000
                                40,000
                                         40.000
                                                 40.000
                                                                   40.000
                                                                                          587.8
                                          587.8
                                                          587.8
                                                                   587.8
                                                                                                      587.8
P. PSIA
               587.8
                        587.8
                                 587.8
                                                  587.8
                                                                            587.8
                                                                                   587.8
                                                                                                              587.8
                                                                                   700.0
                                                                                           600.0
T, DEG K
             1500.0
                                         1200.0
                                                 1100.0
                                                         1000.0
                                                                   900.0
                                                                                                      500.0
                                                                                                              400.0
                                                                                                                       300.0
                        1400.0
                                1300.0
                                                                            800.0
T, DEG F
             2240.3
                        2060.3
                                1880.3
                                         1700.3
                                                 1520.3
                                                         1340.3
                                                                  1160.3
                                                                            980.3
                                                                                    800.3
                                                                                            620.3
                                                                                                      440.3
                                                                                                              260.3
                                                                                                                       80.3
RHO, G/CC
             9.4145-3 1.0087-2 1.0863-2 1.1768-2 1.2838-2 1.4122-2 1.5691-2 1.7652-2 2.0174-2 2.3536-2 2.8243-2 3.5304-2 4.8933-2
                                         28.970
               28.970
                        28.970
                                28.970
                                                 28,970
                                                          28,970
                                                                   28.970
                                                                           28.970
                                                                                    28.969
                                                                                            28,970
                                                                                                     28.970
                                                                                                             28,970
                                                                                                                      30.115
M. MOL WT
CP, CAL/(G)(K)
               0.3042
                        0.2999
                                0.2955
                                         0.2911
                                                 0.2865
                                                          0,2818
                                                                   0.2764
                                                                           0.2704
                                                                                    0.2642
                                                                                            0.2579
                                                                                                     0.2522
                                                                                                             0.2474
                                                                                                                      0.2750
                                                                  1,3301
               1.2911
                        1,2966
                                1,3023
                                         1.3083
                                                 1.3147
                                                          1.3217
                                                                           1.3399
                                                                                    1.3508
                                                                                            1.3623
                                                                                                     1.3737
                                                                                                             1.3837
                                                                                                                      1.3271
GAMMA (S)
SON VEL.M/SEC
                745.5
                         721.8
                                 697.1
                                          671.3
                                                  644.3
                                                           615.9
                                                                    586.2
                                                                            554.7
                                                                                     520.9
                                                                                             484.3
                                                                                                      444.0
                                                                                                              398.6
                                                                                                                       331.5
MOLE FRACTIONS
AR
              0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914
                                                                          0.04106
             0.04106 0.04106
                              0.04106
                                       0.04106
                                                0.04106
                                                         0.04106 0.04106
                                                                                  0.04106
                                                                                           0.04106 0.04106
                                                                                                            0.04106
                                                                                                                     0.04106
C02
            0.00000 0.00000
                                                        0.00000 0.00000
                                                                          0.00000 0.00000
H201L1
                              0.00000 0.00000
                                                0.00000
                                                                                           0.00000 0.00000
                                                                                                            0.00000
                                                                                                                     0.03803
             0.03886 0.03886
                                                                                           0.03887 0.03887
H20
                              0.03887 0.03887
                                                0.03887
                                                         0.03887 0.03887
                                                                          0.03887 0.03887
                                                                                                            0.03887
                                                                                                                     0.00083
             0.00108 0.00065
                                                                         0.00000 0.00000
                                                                                           0.00000 0.00000
                                                                                                            0.00000
NO
                               0.00036
                                        0.00018
                                                0.00008
                                                         0.00003 0.00001
                                                                                                                     0.00000
N02
             0.00003 0.00002
                               0.00002
                                        0.00002
                                                0.00001
                                                         0.00001 0.00001 0.00000 0.00000
                                                                                           0.00000 0.00000
                                                                                                            0.00000
                                                                                                                     0.00000
N2
                                                                                           0.76571
              0.76517 0.76539
                               0.76554
                                        0.76563
                                                0.76568
                                                         0.76570
                                                                 0.76571 0.76571 0.76571
                                                                                                    0.76572
                                                                                                           0.76572
                                                                                                                     0.76572
                                                         0.0000 0.00000 0.00000 0.00000
                                                                                           0.00000 0.00000
                                                                                                           0.00000
ОH
              0.00002 0.00001
                               0.00000 0.00000
                                                0.00000
                                                                                                                     0.00000
                              0.14502 0.14511 0.14516
                                                         0.14519 0.14520 0.14521 0.14521 0.14521 0.14521 0.14521
                                                                                                                     0.14521
02
              0.14464 0.14486
   CASE= 0 0/F= 50.0000
                                F/A= 0.02000
                                                PERCENT FUEL= 1,9608
                                                                        PHI= 0.2931
                                                        50.000
P, ATM
               50,000
                                50,000
                                         50,000
                                                 50,000
                                                                   50.000
                                                                           50,000 50,000
                                                                                            50,000
                                                                                                     50.000
                                                                                                             50,000
                        50,000
               734.8
                         734.8
                                 734.8
                                                                                   734.8
P. PSIA
                                         734.8
                                                  734.8
                                                           734.8
                                                                   734.8
                                                                            734.8
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                                                                                                     734.8
                                                                                                             734.8
                                                                                    2000.0
                                                                                          1900.0
                                                                                                             1700.0
               2800.0
                                                  2400.0
                                                          2300.0
                                                                                                     1800.0
                                                                                                                    1600.0
T. DEG K
                        2700.0
                                2600.0
                                         2500.0
                                                                   2200.0
                                                                           2100.0
                        4400.3
                                                  3860.3
                                                        3680.3
                                                                   3500.3
                                                                           3320.3 3140.3 29،0.3
                                                                                                     2780.3
                                                                                                             2600.3
T. DEG F
               4580.3
                                4220.3
                                         4040.3
RHO, G/CC
             6.2765-3 6.5175-3 6.7748-3 7.0507-3 7.3482-3 7.6703-3 8.0208-3 8.4040-3 8.8251-3 9.2901-3 9.8066-3 1.0384-2 1.1033-2
                                28,908
                                                                                    28,966
                                                                                                     28.969
M, MOL HT
               28.842
                        28.880
                                         28.928
                                                 28,943
                                                          28,952
                                                                   28.959
                                                                           28,964
                                                                                            28,968
                                                                                                             28.970
               0.4179
                                                                   0.3411
                                                                                                     0.3179
CP, CAL/IGIIKI
                        0.3989
                                0.3828
                                         0.3694
                                                  0.3583
                                                          0.3490
                                                                           0.3343
                                                                                    0.3283
                                                                                            0.3229
                                                                                                             0.3132
                                                                                                                    0.3086
                                                                           1.2597
                                                                                                     1.2754
GAMMA (S)
               1.2155
                        1,2224
                                1,2293
                                         1,2360
                                                 1,2424
                                                          1,2485
                                                                   1.2542
                                                                                    1.2651
                                                                                            1.2703
                                                                                                             1.2806
                                                           908.1
SON VEL.M/SEC
                990.5
                         974.8
                                 958.8
                                          942.4
                                                   925.5
                                                                    890.1
                                                                            871.4
                                                                                     852.2
                                                                                             832.3
                                                                                                      811.7
                                                                                                              790.5
MOLE FRACTIONS
              0.00910 0.00911 0.00912 0.00913 0.00913 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914 0.00914
AR
                                                                         0.00004 0.00002 0.00001 0.00000 0.00000 0.00000
CO
              0.00228
                      0.00150 0.00094
                                        0.00057 0.00033 0.00018 0.00009
                                                        0.04086 0.04096
                                                                         0.04101 0.04104 0.04105 0.04106 0.04106 0.04106
C02
              0.03860
                      0.03944 0.04004
                                        0.04044 0.04070
              0.00020 0.00011 0.00006 0.00003 0.00002
                                                        0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 1,0000,0
Н
H02
              0.00005 0.00004 0.00003 0.00003 0.00002
                                                        0.00002 0.00001
                                                                         0.00001 0.00001 0.00000 0.00000 0.00000 0.00000
                                                         0.00003
                                                                                   0.0000.0 0.00000 0.00000 0.00000
H2
              0.00030 0.00020
                               0.00013 0.00009 0.00005
                                                                 0.00002
                                                                         0.00001
                                                                                                                    0.00000
H20
              0.03494 0.03584
                               0.03659 0.03719
                                               0.03766
                                                         0.03802 0.03830
                                                                         0.03849
                                                                                   0.03863 0.03873 0.03879 0.03883
                                                                                                                     0.03885
NO
              0.02920 0.02558
                               0.02213 0.01890
                                                0.01589
                                                         0.01314 0.01067
                                                                         0.00847
                                                                                   0.00657 0.00495 0.00361
                                                                                                            0.00254
                                                                                                                     0.00170
N02
              0.00010 0.00009
                               0.00009
                                        0.00009
                                                0.00008
                                                         0.00008
                                                                 0.00007
                                                                          0.00007
                                                                                   0.00006 0.00006
                                                                                                    0.00005
                                                                                                            0.00004
                                                                                                                     0.00004
                               0.75297
                                        0.75513 0.75702
                                                         0.75866 0.76007
                                                                          0.76129
                                                                                   0.76232
                                                                                           0.76317
                                                                                                    0.76387
                                                                                                            0.76443
                                                                                                                     0.76485
N2
              0.74769 0.75050
              0.00273 0.00183
                               0.00119
                                        0.00075
                                                0.00045
                                                         0.00026 0.00014
                                                                         0.00007
                                                                                   0.00004
                                                                                           0.00002
                                                                                                    10000.0
                                                                                                            0.00000
Ω
                                                                                                                     0.00000
OH
              0.00666 0.00524 0.00403
                                        0.00302
                                                0.00220
                                                        0.00156
                                                                 0.00107
                                                                         0.00070
                                                                                  0.00044
                                                                                           0.00027
                                                                                                    0.00015
                                                                                                            0.00008
                                                                                                                     0.00004
              0.12815 0.13050
                                                                         0.14069 0.14173 0.14260
                               0.13267
                                        0.13465
                                                0.13645
                                                         0.13805 0.13946
                                                                                                    0.14331
                                                                                                            0.14388
```

```
F/A= 0.04000 PERCENT FUEL= 3.8462 PHI= 0.5862
       CASE= O
                       0/F= 25.0000
                                                                                                 0.5000 PH
                                   0.5000
                                               0.5000
                                                            0.5000 0.5000 0.5000
                                                                                                             0.5000 0.5000
                                                                                                                                      0.5000
                                                                                                                                                   0.5000
                                                                                                                                                               0.5000 0.5000
P, ATM
                       0.5000
                                               7.3
                                                                                                                                                   7,3
                                   7.3
                                                            7.3
                                                                        7.3
                                                                                     7.3
                                                                                                  7.3
                                                                                                                         7.3
                                                                                                                                     7.3
P, PSIA
                      7.3
                                                                                                              7.3
                                                                                                                                                               7.3
                                                                                                                                                                         7.3
                   1500.0
                                                                                   1000.0
                                                                                                  900.0
                                                                                                                                                    500.0
                                                                                                                                                                 400.0
                                   1400.0
                                                          1200.0
                                                                      1100.0
                                                                                                               800.0
                                                                                                                           700.0
                                                                                                                                       600.0
                                                                                                                                                                             300.0
T, DEG k
                                               1300.0
                       2240.3
                                   2060.3
                                               1880.3
                                                          1700.3
                                                                      1520.3
                                                                                  1340.3
                                                                                              1160.3
                                                                                                               980.3
                                                                                                                         800.3
                                                                                                                                     620.3
                                                                                                                                                    440.3
                                                                                                                                                                 260.3
                                                                                                                                                                              80.3
T, DEG F
                    1,1770-4 1,2611-4 1,3581-4 1,4713-4 1,6050-4 1,7655-4 1,9617-4 2,2069-4 2,5222-4 2,9425-4 3,5310-4 4,4138-4 5,9292-4
RHO, G/CC
                                                                                                 28.974
                                                                                                              28.974
                       28,974
                                   28.974
                                                            28.974
                                                                        28.974
                                                                                     28,974
                                                                                                                          28.974
                                                                                                                                      28.974
                                                                                                                                                   28.974
                                                                                                                                                               28.974
                                                                                                                                                                           29, 192
M, MOL NT
                                               28,974
                                                                                                              0.2779
CP, CAL/(G)(k)
                       0.3144
                                   0.3096
                                                0.3050
                                                            0.3003
                                                                        0.2954
                                                                                     0.2902
                                                                                                 0.2843
                                                                                                                          0.2712
                                                                                                                                      0.2644
                                                                                                                                                   0.2580
                                                                                                                                                               0.2523
                                   1.2846
                                                1.2902
                                                            1,2960
                                                                                     1,3095
                                                                                                              1,3276
                                                                                                                                      1.3503
                                                                                                                                                   1.3622
                                                                                                                                                               1.3733
                                                                                                                                                                            1.1429
                       1.2792
                                                                        1,3024
                                                                                                 1.3179
                                                                                                                          1.3386
GAMMA (S)
                                                 693.7
                                                                                      613.0
                                                                                                   583.4
                                                                                                               552.1
                                                                                                                           518.5
                                                                                                                                        482.2
                                                                                                                                                    442.1
                                                                                                                                                                 397.0
                                                                                                                                                                             312.5
SON VEL.M/SEC
                        742.0
                                     718.4
                                                             668.0
                                                                          641.2
MOLE FRACTIONS
AR
                     0.00897 0.00897 0.00897
                                                          0.00997 0.00897 0.00897 0.00897 0.00897 0.00697 0.00897 0.00897
                                                                                                                                                                          0.00897
                                                                                   0.08027 0.08027
                                                                                                                        0.08027
                                                                                                                                    0.08027 0.08027
C02
                    0.08027
                                 0.08027 0.08027
                                                          0.08027
                                                                       0.08027
                                                                                                            0.08027
                                                                                                                                                             0.08027
                                                                                                                                                                          0.08027
H201L1
                   0.00000 0.00000 0.00000
                                                          0.00000
                                                                      0.00000
                                                                                   0.00000 0.00000
                                                                                                           0.00000 0.00000
                                                                                                                                    0.00000 0.00000
                                                                                                                                                             0.00000
                                                                                                                                                                          0.00745
                                                                                                                                                            0.07625 0.06881
H20
                   0.07622 0.07624 0.07625
                                                          0.07625 0.07625
                                                                                   0.07625 0.07625
                                                                                                           0.07625 0.07625
                                                                                                                                    0.07625 0.07625
NO.
                   0.00081
                                 0.00048
                                             0.00027
                                                          0.00013 0.00006
                                                                                  0.00002 0.00001 0.00000
                                                                                                                         0.00000 0.00000 0.00000
                                                                                                                                                            0.00000 0.00000
N2
                    0.75070 0.75087
                                              0.75098 0.75105 0.75109
                                                                                   0.75111 0.75112 0.75112
                                                                                                                        0.75112 0.75112 0.75112 0.75112 0.75112
                    0.00007
                                 0.00003 0.00001
                                                          G.00000 0.00000
                                                                                  0.00000 0.00000 0.00000
                                                                                                                        0.00000
                                                                                                                                    0.00000 0.00000
                                                                                                                                                             0.00000
                                                                                                                                                                         0.00000
OH
                     0.08296 0.08314
                                             0.08325
                                                          0.08332 0.08336
                                                                                  0.08338 0.08338 0.08339 0.08339
                                                                                                                                    0.08339 0.08339
                                                                                                                                                             0.08339
                                                                                                                                                                          0.08339
      CASE= 0 0/F= 25.0000
                                               F/A= 0.04000
                                                                      PERCENT FUEL= 3.8462
                                                                                                         PHI= 0.5862
P, ATM
                      1,0000 1,0000
                                              1.0000
                                                           1.0000 1.0000
                                                                                  1.0000
                                                                                                1,0000 1,0000 1,0000
                                                                                                                                     1.0000
                                                                                                                                                   1.0000
                                                                                                                                                               1.0000
                                                                                                                                                   14.7
P, PSIA
                       14.7
                                   14.7
                                               14.7
                                                            14.7
                                                                         14.7
                                                                                     14.7
                                                                                                 14.7
                                                                                                              14.7
                                                                                                                         14.7
                                                                                                                                     14.7
                                                                                                                                                                14.7
                                                                                                                                                                            14.7
                                                                                     2300.0
                                                                                                             2100.0
                       2800.0
                                   2700.0
                                                2600.0
                                                            2500.0
                                                                        2400.0
                                                                                                 2200.0
                                                                                                                          2000.0
                                                                                                                                     1900.0
                                                                                                                                                   1800.0
                                                                                                                                                               1700.0
                                                                                                                                                                            1600.0
T, DEG K
                      4580.3
                                   4400.3
                                                                        3860.3
T. DEG F
                                                4220.3
                                                            4040.3
                                                                                     3680.3
                                                                                                 3500.3
                                                                                                              3320.3
                                                                                                                          3140.3
                                                                                                                                      2960.3
                                                                                                                                                   2780.3
                                                                                                                                                               2600.3
                                                                                                                                                                           2420.3
                    1.2202-4 1.2775-4 1.3365-4 1.3977-4 1.4616-4 1.5292-4 1.6014-4 1.6793-4 1.7643-4 1.85/8-4 1.9613-4 2.0769-4 2.2068-4
RHO, G/CC
                                   28.303
                                                28.514
                                                                        28.785
                                                                                     28,860
                                                                                                 28,908
                                                                                                              28,938
                                                                                                                          28.955
                                                                                                                                      28.964
                                                                                                                                                   28,969
                                                                                                                                                               28.972
M, MOL WT
                       28.035
                                                            28,672
                                                                                                                                      0.3408
                                   0.7348
                                               0.6430
                                                            0.5606
                                                                        0.4919
                                                                                     0.4385
                                                                                                 0.3995
                                                                                                              0.3722
                                                                                                                          0.3536
                                                                                                                                                   0.3317
                                                                                                                                                               0.3248
                                                                                                                                                                           0.3192
CP, CAL/IGITED
                       0.8312
GAMMA (S)
                      1.1495
                                   1.1554
                                               1.1642
                                                            1.1761
                                                                        1.1905
                                                                                     1.2060
                                                                                                 1,2211
                                                                                                             1.2346
                                                                                                                          1.2457
                                                                                                                                      1.2548
                                                                                                                                                   1,2621
                                                                                                                                                               1,2684
                                                                                                                                                                            1.2740
                                                                                                                           845.8
SON VEL, M/SEC
                     977.0
                                  957.3
                                                939.5
                                                             923.4
                                                                          908.4
                                                                                      893.9
                                                                                                  879.0
                                                                                                               863.1
                                                                                                                                        827.3
                                                                                                                                                    807.5
                                                                                                                                                                786.6
                                                                                                                                                                            764.8
MOLE FRACTIONS
AP
                     0.00868 0.00876 0.00882 0.00887 0.00891 0.00893 0.00895
                                                                                                           0.00896 0.00896 0.00896 0.00897 0.00897
                     0.02748 0.02043 0.01421 0.00923 0.00559 0.00315 0.00166 0.00081 0.00037 0.00015 0.00006 0.00002 0.00001
0.0
                 0.05019 0.05798 0.06479 0.07021 0.07416 0.07680 0.07843 0.07936 0.07985 0.08009 0.08020 0.08025 0.08026
002
                0.00547 0.00323 0.00181 0.00096 0.00048 0.00022 0.00010 0.00004 0.00001 0.00000 0.00000 0.00000
н
                     0,0000,0 00000,0 00000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,0000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 0,000,0 
H02
                     0.00452 0.00327 0.00225 0.00117 0.00092 0.00054 0.00030 0.00016 0.00008 0.00003 0.00001 0.00001 0.00000 0.05665 0.06162 0.06563 0.06876 0.07110 0.07281 0.07402 0.07485 0.07540 0.07576 0.07598 0.07611 0.07619
H2
H20
                     0,02183 0,01913 0,01652 0,01408 0.01183 0.00979 0,00795 0,00632 0,00491 0,00370 0.00270 0,00190 0,00128
0.4
                     0,0000,0 00000,0 00000,0 00000,0 10000,0 10000,0 10000,0 10000,0 10000,0 10000,0 10000,0 10000,0
ND2
                     0.71585 0.72413 0.73091 0.73624 0.74028
                                                                                   0.74326 0.74543 0.74700 0.74815 0.74900 0.74963 0.75011 0.75045
N2
                                                                                  0,00138 0,00076 0,00039 0,00019 0,00008 0,00003 0,00001 0,00000
n
                     0.01477 0.00987 0.00639 0.00399 0.00240
                     0.01972 0.01594 0.01249 0.00948 0.00698
                                                                                  0.00497 0.00342 0.00226 0.00143 0.00086 0.00049 0.00026 0.00013
OH
                     0.07481 0.07561 0.07616 0.07669 0.07734
                                                                                   0.07813 0.07899 0.07985 0.08065 0.08134 0.08191 0.08237
```

```
0/F= 20.0000
                               F/A= 0.05000
                                              PERCENT FUEL= 4,7619
                                                                      PHI = 0.7327
P, ATM 1.5000
                       1.5000
                               1.5000
                                       1.5000
                                              1.5000
                                                        1.5000
                                                                1.5000 1.5000 1.5000
                                                                                         1,5000
                                                                                                 1.5000
                                                                                                         1.5000
P, PSIA
               22.0
                        22.0
                                22.0
                                         22.0
                                                 22.0
                                                         22.0
                                                                  22.0
                                                                                 22.0
                                                                                         22.0
                                                                                                 22.0
                                                                                                         22.0
                                                                                                                  22.0
                                                                        22.0
                       1400.0
                                                1100.0
                                                        1000.0
                                                                                 700.0
                                                                                                                  300.0
               1500.0
                                        1200.0
                                                                 900.0
                                                                         800.0
                                                                                         600.0
                                                                                                  500.0
                                                                                                          400.0
T. DEG K
                               1300.0
T, DEG F
              2240.3
                       2060.3
                               1880.3
                                       1700.3
                                                1520.3
                                                        1340.3
                                                                1160.3
                                                                         980.3
                                                                                 800.3
                                                                                         620.3
                                                                                                  440.3
                                                                                                          260.3
                                                                                                                   80.3
RHO, G/CC
             3.5313-4 3.7835-4 4.0746-4 4.4141-4 4.8154-4 5.2970-4 5.8855-4 6.6212-4 7.5671-4 8.8283-4 1.0594-3 1.3242-3 1.9047-3
RHO, G/CC 3.5313-4
M, MOL WT 28.976
                                                28,977
                                                                28.977
                                                                        28,977
                                                                                                 28.977
                                                                                                         28.977
                                                                                                                 31.259
                       28,977
                               28.977
                                        28,977
                                                        28,977
                                                                                 28,977
                                                                                         28.977
               0.3187
                       0.3140
                               0.3094
                                                0.2997
                                                        0.2943
                                                                                 0.2746
                                                                                         0.2675
                                                                                                 0.2608
                                                                                                         0.2547
CP, CAL/(G)(K)
                                        0.3047
                                                                0.2882
                                                                        0.2816
                                                                                                                 0.7416
                                                                1.3122
                                                                                                                 1.1742
GAMMA (S)
              1.2744
                       1.2794
                               1.2847
                                        1.2905
                                                1.2968
                                                        1.3038
                                                                        1.3220
                                                                                 1.3329
                                                                                         1.3447
                                                                                                 1.3568
                                                                                                         1,3684
                                                 639.8
SON VEL.M/SEC
                740 6
                        716.9
                                692.3
                                        666.6
                                                         611.6
                                                                 582.1
                                                                         550.9
                                                                                 517.4
                                                                                          481.2
                                                                                                  441.2
                                                                                                          396.3
                                                                                                                  306.1
MOLE FRACTIONS
                                                                                0.00888 0.00888
                                                                                                                0.00888
AR
              0.00888 0.00888 0.00888
                                      0.00298 0.00888
                                                       0.00888 0.00898
                                                                       0.00888
                                                                                                0.00888
                                                                                                        0.00888
            0.09932
                      0.09932
                                       0.09932
                                                                       0.09932
                                                                                0.09932
                                                                                       0.09932
                                                                                                0.09932
                                                                                                        0.09932
002
                              0.09932
                                              0.09932
                                                       0.09932
                                                               0.09932
                                                       0.00000
                                                                                        0.00000
                      0.00000
                              0.00000
                                      0.00000
                                              0.00000
                                                              0.00000
                                                                       0.00000
                                                                                                0.00000
H20 (L)
            0.09439 0.09441
                              0.09441
                                      0.09442 0.09442
                                                       0.09442 0.09442
                                                                       0.09442
                                                                                0.09442
                                                                                       0.09442
                                                                                                0.09442
                                                                                                                0.02142
             0.00065
                                                       0.00002 0.00001
                                                                       0.00000 0.00000
                                                                                        0.00000 0.00000
                                                                                                       0.00000
ИО
                      0.00039
                              0.00021 0.00011
                                              0.00005
                                                                                       0.74403 0.74403
             0.74369
                      0.74383
                              0.74392 0.74397
                                              0.74400
                                                       0.74402 0.74402
                                                                      0.74403 0.74403
N2
                      0.00002 0.00001 6.00000 0.00000
0H
              0.00005
                                                       0.00000 0.00000 0.00000 0.00000 0.00000
                                                                                                        0.00000
                                                                                                                0.00000
                      0,05315 0,05324 0,05330 0,05333 0.05334 0,05335 0,05335 0.05335 0.05335 0.05335
              0.05301
                                                                                                        0.05335
    CASE= 0 0/F= 20.0000
                               F/A= 0.05000
                                              PERCENT FUEL = 4.7619
                                                                     PHI= 0.7327
GAMMA (S) 1,1516
               975.5
                       957.2
                                                 908.7
                                                         894.0
                                                                878.9
                                                                                 845.1
                                                                                                  806.3
                                                                                                          785.3
SON VEL.M/SEC
                                939.7
                                        923.6
                                                                         862.7
                                                                                         826.3
                                                                                                                  763.4
MOLE FRACTIONS
AR
              0.00862
                      0.00869 0.00875
                                       0.00880
                                              0.00883 0.00885
                                                              0,00886 0.00887 0.00888 0.00888
                                                                                                0.00888
                                                                                                       0.00888
                                                                                                                0.00888
                      0.02251 0.01563
                                       0.01015
                                              0.00614 0.00347
                                                               0.00183
                                                                       0.00089 0.00040 0.00017
                                                                                                0.00006
                                                                                                       0.00002
                                                                                                                0.00001
CO
              0.03044
              0.06594 0.07470 0.08224
                                      0.08823 0.09258
                                                      0.09550 0.09729
                                                                       0.09832 0.09886 0.09913 0.09925 0.09929
                                                                                                                0.09931
002
                                                       0.00017 0.00007 0.00003 0.00001 0.00000
H
             0.00410 0.00242 0.00135
                                      0.00072
                                              0.00036
                                                                                               0.00000 0.00000
                                                                                                                0.00000
             0.00002
                                                       0.0000.0 00000.0 000000 0.00000 0.00000
                                                                                               0.00000
H02
                      0.00001 0.00001
                                      0.00001
                                               0.00001
                                                                                                       0.00000
                                                                                                                0.00000
H2
              0.00509
                      0.00366 0.00251
                                       0.00124
                                               0.00102
                                                       0.00060 0.00033
                                                                       0.00017
                                                                                0.00008 0.00004
                                                                                                0.00002
                                                                                                       0.00001
              0.07569
                      0.08056 0.08446 0.08746
                                               0.08970
                                                       0.09130 0.09242 0.09317 0.09367 0.09399
                                                                                               0.09418
                                                                                                       0.09430
H20
                                                                                               0.00215 0.00151
NO:
              0.01827
                      0.01576 0.01344 0.01134
                                              0.00946
                                                       0.00779 0.00631 0.00502 0.00390 0.00294
                                              0.00001
                                                       0.00001 0.00001 0.00000
                                                                                0.00000 0.00000 0.00000 0.00000
NO2
              0.00001
                      0.00001
                              0.00001
                                       0.00001
                                                       0.73746 0.73934
                                                                                0.74163 0.74233 0.74284 0.74322
N2
              0.71286
                      0.72032 0.72643
                                      0.73122 0.73483
                                                                       0.74067
              0.00876
                      0.00577
                              0.00368
                                      0.00228 0.00136
                                                       0.00078 0.00043
                                                                       0.00022
                                                                                0.00011
                                                                                        0.00005
                                                                                               0.00002 0.00001
                                                       0.00419 0.00287 0.00189
             0.01756
                      0.01393 0.01076 0.00808
                                               0.00591
                                                                                0.00119 0.00072 0.00041 0.00021
                                                       0.04989 0.05024 0.05073
                                                                                0.05126
                                                                                        0.05176
                                                                                                0.05219 0.05255
              0.05264
                      0.05164 0.05071
                                       0.05007
                                               0.04980
```

```
F/A= 0.06000
                                                  PERCENT FUEL= 5.6604
                                                                           PHI= 0.8792
                 0/F= 16.6667
                                                                                                3,0000
P, ATM
                                  3.0000
                                           3,0000 3,0000
                                                             3.0000
                                                                      3,0000
                                                                              3.0000
                                                                                       3,0000
                                                                                                         3.0000
                                                                                                                  3.0000
                                                                                                                           3.0000
                3.0000
                         3,0000
                                                                      44.1
                                                                               44.1
                                                                                                          44.1
P, PSIA
                           44.1
                                            44.1
                                                              44.1
                                                                                        44.1
                                                                                                 44.1
                                                                                                                   44.1
                                                                                                                            44.1
                 44.1
                                   44.1
                                                     44.1
                                                                       900.0
                                                                                                                   400.0
T, DEG K
                1500.0
                         1400.0
                                  1300.0
                                           1200.0
                                                    1100.0
                                                             1000.0
                                                                                800.0
                                                                                        700.0
                                                                                                 6,000
                                                                                                          500.0
                                                                                                                            300.0
                                                                      1160.3
                                                                                                 620.3
                                                                                                                             80.3
T, DEG F
                2240.3
                         2060.3
                                  1880.3
                                           1700.3
                                                    1520.3
                                                             1340.3
                                                                                980.3
                                                                                        800.3
                                                                                                          440.3
                                                                                                                   260.3
RHO, G/CC
              7.0631-4 7.5677-4 8.1498-4 8.8290-4 9.6316-4 1.0595-3 1.1772-3 1.3244-3 1.5135-3 1.7658-3 2.1190-3 2.6487-3 3.9321-3
                                                    28,979
                28.979
                         28.979
                                  28.979
                                           28.979
                                                             28.979
                                                                      28.979
                                                                               28,979
                                                                                       28.979
                                                                                                28.979
                                                                                                         28,979
                                                                                                                  28,979
                                                                                                                           32,266
M. MOL HT
                                                             0.2983
                                                                              0.2851
CP, CAL/IGHKI
                0.3227
                         0.3183
                                  0.3137
                                           0.3089
                                                    0.3038
                                                                      0.2920
                                                                                       0.2779
                                                                                                0.2706
                                                                                                         0.2635
                                                                                                                  0.2571
                                                                                                                           0.5102
                1.2699
GAMMA (S)
                         1.2746
                                  1.2797
                                           1.2853
                                                    1.2915
                                                             1,2985
                                                                      1,3069
                                                                              1.3166
                                                                                       1.3276
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SON VEL.M/SEC
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MOLE FRACTIONS
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     CASE= 0 0/F= 16.6667
                                 F/A= 0.06000 PERCENT FUEL= 5.6604 PHI= 0.8792
P, ATM
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              4580,3 4400,3 4220,3 4040,3 3860,3 3680,3 3500,3 3320,3 3140,3 2960,3 2780,3 2600,3 2420,3 4,9021-4 5,1237-4 5,3547-4 5,5963-4 5,8504-4 6,1198-4 6,4080-4 6,7195-4 7,0592-4 7,4329-4 7,8470-4 8,3092-4 8,8288-4
T, DEG F
RHO, G/CC
                                                                                                         28.975
M, MOL WT
                28,158
                         28.379
                                  28.560
                                           28.701
                                                    28.804
                                                           28,875
                                                                      28,920
                                                                              28,947
                                                                                        28.963
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CP, CAL/IGIIKI
              0.7562
                         0.6845
                                  0.6137
                                           0.5468
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GAMMA (S) 1.1539
SON VEL.M/SEC 975.7
                                                            1.2049
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MOLE FRACTIONS
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H20
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OH
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                                 0.02649 0.02473 0.02348 0.02275 0.02245
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ADD H201L1
             CASE= 0 0/F= 14.6540
                                                                                           F/A= 0.06824
                                                                                                                                     PERCENT FUEL= 6.3882
                                                                                                                                                                                                          PHI= 1.0000
P, ATM 6.0000
P, PSIA 88.2
T, DEG K 1500.0
T, DEG F 2240.3
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 RHO, G/CC
                            1.4127-3 1.5136-3 1.6301-3 1.7659-3 1.9265-3 2.1191-3 2.3546-3 2.6489-3 3.0273-3 3.5318-3 4.2382-3 5.2978-3 8.0416-3
 M, MOL WT
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 CP. CAL/IGITET
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 GAMMA (S)
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 SON VEL, M/SEC
                                           738.2
                                                                     714.5
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 MOLE FRACTIONS
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LASE= 0 0 0/F= 14,6540 F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1,0000 PP, ATM 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10,000 10
             CASE= 0 0/F= 14.6540 F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1.0000
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1.2126
876.3
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 GAMMA (S) 1.1605
SON VEL,M/SEC 978.7
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942.5
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 MOLE FRACTIONS
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 CO
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 C02
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 H2
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         0.0040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040 0.00040
 H20
 NÖ
 N2
 02
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D/F= 14.2857
                                    F/A= 0.07000
                                                     PERCENT FUEL= 6.5421 PHI= 1.0258
      CASE =
                                             15,000
                                                       15.000
                                                                15,000 15,000 15,000
                                                                                                               15,000
                                                                                                                        15,000
  . ATM
                 15,000
                           15.000
                                    15,000
                                                                                            15,000
                                                                                                     15,000
                                                                                                                                  15,000
                            220.4
                                              220.4
                                                        220.4
                                                                 220.4
                                                                          220.4
                                                                                   220.4
                                                                                                      220.4
                                                                                                                220.4
                                                                                                                         220.4
                                                                                                                                  220.4
P. PSIA
                  220,4
                                     220.4
                                                                                             220.4
                                              1200.0
                                                                1000.0
                                                                          900.0
                                                                                    800.0
                                                                                             700.0
                                                                                                      600.0
                                                                                                                500.0
                                                                                                                         400.0
                                                                                                                                  300.0
T. DEG K
                 1500.0
                           1400.0
                                    1300.0
                                                       1100.0
T. DEG F
                 2240.3
                           2060.3
                                    1880.3
                                             1700.3
                                                       1520.3
                                                                1340.3
                                                                         1160.3
                                                                                    980.3
                                                                                             800.3
                                                                                                      620.3
                                                                                                                440.3
                                                                                                                         260.3
                                                                                                                                   80.3
RHO, G/CC
               3.5141-3
                        3.7651-3 4.0548-3 4.3927-3 4.7920-3 5.2712-3 5.8570-3 6.5899-3 7.5442-3 8.8210-3 1.0594-2 1.3244-2 2.0245-2
                 28.836
                                                                                                               28,977
                                                                                                                        28,981
M, MOL WT
                           28,836
                                    28.836
                                             28.836
                                                       28.836
                                                                28.836
                                                                         28.836
                                                                                   28,840
                                                                                            28,889
                                                                                                     28,953
                                                                                                                                 33,225
CP, CAL/IGI(K)
                 0.3261
                           0.3226
                                    0.3188
                                             0.3146
                                                       0.3101
                                                                0.3052
                                                                         0.2995
                                                                                   0.2964
                                                                                            0.3054
                                                                                                     0.2851
                                                                                                               0.2688
                                                                                                                        0.2596
                                                                                                                                 0.3405
GAMMA ISI
                 1.2679
                           1.2716
                                    1.2758
                                             1.2804
                                                       1,2857
                                                                1.2916
                                                                          1.2990
                                                                                   1.3054
                                                                                            1.3032
                                                                                                      1.3236
                                                                                                               1,3439
                                                                                                                        1.3591
                                                                                                                                 1,2315
SON VEL, M/SEC
                 740.5
                           716.5
                                     691.5
                                               665.6
                                                        638.6
                                                                 610.3
                                                                           580.6
                                                                                    548.7
                                                                                             512.4
                                                                                                       477.6
                                                                                                                439.1
                                                                                                                         394.9
                                                                                                                                  304.1
MOLE FRACTIONS
AR
                0.00867
                         0.00867
                                   0.00867
                                            0.00867
                                                      0.00867
                                                               0.00867
                                                                        0.00867
                                                                                  0.00868
                                                                                           0.00869
                                                                                                    0.00871
                                                                                                              0.00872
                                                                                                                       0.00872
                                            0.00000
0.00000
0.00590
                                                      0.00000
                                                               0.00000
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                                                                                                              0.00000
CISI
                0.00000
                         0.00000
                                   0.00000
                0.00000
                                                      0.00000
                                                               0.00000
                                                                        0.00000
                                                                                 0.00006
                                                                                          0.00090
                                                                                                    0.00200
                                                                                                              0.00243
CH4
                         0.00000
                                   0.00000
                                                               0.00427
                                                                        0.00320
                                                                                 0.00202
                                                                                                              0.00000
                0.00727
                         0.00692
                                   0.00647
                                                      0.00517
                                                                                           0.00067
                                                                                                    0.00007
                                                                                                                       0.00000
CO
                                            0.12978
0.00415
                                                              0.13141
                                                                        0.13247 0.13362
                0.12840
                                   0.12921
                                                      0.13050
                                                                                           0.13436
                                                                                                   0.13415
                                                                                                              0.13391
                                                                                                                       0.13385
C02
                         0.12876
                0.00278
H2
                         0.00313
                                   0.00359
                                                      0.00488
                                                              0.00577
                                                                        0.00683 0.00776
                                                                                           0.00573 0.00193
                                                                                                              0.00035
                                                                                                                      0.00003
                                            0.00000
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                         0.00000
                                                      0.00000
                                                              0.00000
                                                                                 0.00000
                                                                                           0.00000
                                                                                                   0.00000
                                                                                                              0.00000 0.00000 0.12708
H20(L)
                                   0.00000
                0.12630
                          0.12595
                                   0.12550
                                            0.12493
                                                      0.12420
                                                               0.12330
                                                                        0.12224
                                                                                 0,12118
                                                                                           0.12172
                                                                                                    0.12360
                                                                                                              0.12447 0.12466
H20
                                                                        0.00001
                                                                                                              0.00003 0.00001
                0.00000
                                            0.00000
                                                      0.00000
                                                               0.00000
                                                                                 0,00003
                                                                                          0.00005
                                                                                                    0.00005
                                                                                                                                0.00000
NH3
                         0.00000
N2
                0.72657
                         0.72657
                                   0.72657
                                            0.72657
                                                      0.72657
                                                               0.72657
                                                                        0.72657 0.72666
                                                                                           0.72799 0.72949
                                                                                                             0.73010 0.73022 0.72657
     CASE = 0
                   0/F= 14,2857
                                    F/A = 0.07000
                                                     PERCENT FUEL= 6,5421
                                                                                PHI= 1.0258
                 20.000
                                    20.000
                                             20,000
                                                       20,000
                                                                20,000
                                                                         20,000
                                                                                   20,000
                                                                                            20,000
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                                                                                                                                  20.000
P. ATM
                           20,000
                  293.9
                                     293.9
                                              293.9
                                                        293.9
                                                                 293,9
                                                                          293.9
                                                                                   293.9
                                                                                             293.9
                                                                                                     233.9
                                                                                                                293.9
                                                                                                                         293.9
P, PSIA
                            293.9
T, DEG K
                           2700.0
                 2800.0
                                    2600.0
                                             2500.0
                                                       2400.0
                                                                2300.0
                                                                         2200.0
                                                                                   2100.0
                                                                                            2000,0
                                                                                                     1900.0
                                                                                                               1800.0
                                                                                                                        1700.0
T, DEG F
                4580.3
                           4400.3
                                    4220.3
                                             4040.3
                                                       3860.3
                                                                3680.3
                                                                         3500.3
                                                                                   3320,3
                                                                                            3140,3
                                                                                                     2960.3
                                                                                                               2780.3
                                                                                                                        2600.3
               2.4628-3 2.5674-3 2.6776-3 2.7941-3 2.9178-3 3.0500-3 3.1919-3 3.3457-3 3.5137-3 3.6989-3 3.9045-3 4.1343-3 4.3927-3 28.793 28.441 28.563 28.659 28.731 28.781 28.811 28.826 28.832 28.835 28.836 28.836 28.836 28.836
RHO, G/CC
M. MOL HT
                                                                                                     0.3396
                                                                                                                        0.3325
CP. CAL/IGHIKI
                0.6289
                           0.5805
                                    0.5340
                                             0.4902
                                                       0.4495
                                                                0.4121
                                                                         0.3803
                                                                                   0.3581
                                                                                            0.3459
                                                                                                               0.3356
                                                                                                                                 0.3294
                                                                1.2154
                                                                         1,2298
                           1,1739
                                                                                            1,2503
                                                                                                               1,2585
GAMMA (S)
                1.1679
                                    1.1815
                                              1,1908
                                                       1,2021
                                                                                   1,2422
                                                                                                                        1,2615
                                                                                                                                  1.2646
SON VEL.M/SEC
                  980.3
                            962.6
                                     945.6
                                               929.4
                                                        913.7
                                                                 898.6
                                                                                    867.4
                                                                                             849.2
                                                                                                      829,2
                                                                                                                808.2
                                                                                                                         786.4
                                                                                                                                  763.8
MOLE FRACTIONS
AR
                0.00851
                         0.00856
                                   0.00859
                                            0.00862
                                                      0.00864
                                                               0.00866
                                                                        0.00867
                                                                                  0.00867
                                                                                           0,00867 0,00867 0,00867
                                                                                                                       0.00867
                                                                                                                                0.00867
                                                                                                             0.00797
                                                                                                                                0.00755
CO
                0.03444
                          0.02775
                                   0.02200
                                            0.01729
                                                      0.01367
                                                               0.01112
                                                                        0.00956
                                                                                  0.00875
                                                                                           0.00837
                                                                                                    0.00815
                                                                                                                       0.00778
C02
                0.09868
                         0.10607
                                   0.11239
                                            0.11755
                                                      0.12152
                                                               0.12430
                                                                        0.12600
                                                                                  0,12688
                                                                                           0.12729
                                                                                                    0.12752
                                                                                                             0.12770
                                                                                                                       0.12789
                                                                                                                                0.12812
                                                               0.00010
                                                                        0.00005
                                                                                           0.00002
                                                                                                    0.00001
                                                                                                             0.00000
               0.00140
                         0.00087
                                   0.00052
                                            0.00030
                                                      0.00017
                                                                                  0.00003
                                                                                                                       0.00000
                                                                                                                                0.00000
H
H02
                0.00001
                         0.00001
                                   0.00000
                                            0.00000
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                                                               0.00000
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                                                                                                             0.00209
H2
                0.00591
                         0.00471
                                   0.00373
                                            0.00297
                                                      0.00241
                                                               0.00203
                                                                        0.00184
                                                                                 0.00179
                                                                                           0.00184
                                                                                                    0.00194
                                                                                                                       0.00227
                                                                                           0.12717
                                                                                                              0.12698
H20
                0.11609
                         0.11929
                                   0.12185
                                            0,12382
                                                      0.12527
                                                               0.12626
                                                                        0.12684
                                                                                 0.12711
                                                                                                    0.12711
                                                                                                                       0.12681
                0.00762
                         0.00572
                                   0.00410
                                            0.00278
                                                      0.00175
                                                               0.00099
                                                                        0.00049
                                                                                  0.00021
                                                                                                    0.00002
                                                                                                              0.00001
0.72656
                                                                                                                       0.00000
NO
               0.70906
                         0.71376
                                   0.71764
                                            0.72072
                                                      0.72306
                                                               0.72469
                                                                        0.72570
                                                                                  0.72622
                                                                                           0.72644
                                                                                                                       0.72656
N2
                                                                                  0.00000
                                                                                           0.00000
               0.00116
                         0.00066
                                   0.00036
                                            0.00018
                                                     0.00008
                                                               0.00003
                                                                        0.00001
                                                                                                    0.00000
                                                                                                              0.00000
                                                                                                                       0.00000
0
                0.00791 0.00575
                                   0.00403 0.00269 0.00170
                                                              0.00099
                                                                        0.00053
                                                                                 0.00025
                                                                                           0.00011
                                                                                                    0.00004
                                                                                                              0.00001
                                                              0.00082 0.00031
                0.02321 0.00685
                                   0.00478 0.00306 0.00173
                                                                                  0.00009
                                                                                           0.00002 0.00000
                                                                                                              0.00000
02
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ADD CISI
ADD H20(L)
                0/F= 12,5000
                                                  PERCENT FUEL= 7,4074
                                                                           PHI= 1.1723
                                  F/A= 0.08000
P, ATM
                30,000
                         30,000
                                  30,000
                                           30,000
                                                   30.000
                                                             30,000
                                                                     30.000
                                                                              30,000
                                                                                       30.000
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                                                                                                                  30.000
                                                                                                                           30,000
P. PSIA
                440.9
                          440.9
                                   440.9
                                            440.9
                                                    440.9
                                                             440.9
                                                                      440.9
                                                                               440.9
                                                                                                440.9
                                                                                                         440.9
                                                                                                                   440.9
                                                                                        440.9
                                                                                                                           440.9
                1500.0
T, DEG K
                         1400.0
                                  1300.0
                                           1200.0
                                                   1100.0
                                                             1000.0
                                                                      900.0
                                                                               800.0
                                                                                        700.0
                                                                                                 600.0
                                                                                                          500.0
                                                                                                                   400.0
                                                                                                                            300.0
T, DEG F
                2240.3
                         2060.3
                                  1880.3
                                           1700.3
                                                   1520.3
                                                             1340.3
                                                                     1160.3
                                                                               980.3
                                                                                        800.3
                                                                                                 620.3
                                                                                                          440.3
                                                                                                                   260,3
                                                                                                                            80.3
RHO, G/CC
              6.8357-3 7.3240-3 7.8874-3 8.5449-3 9.3223-3 1.0263-2 1.1484-2 1.3085-2 1.5073-2 1.7642-2 2.1190-2 2.8520-2 4.1356-2
M. MOL WT
                28.046
                         28,046
                                           28.047
                                                   28.049
                                                            28.071
                                                                     28,270
                                                                                                28.952
                                                                                                         28,979
                                  28.046
                                                                              28.633
                                                                                       28,860
                                                                                                                  31,203
                                                                                                                          33.936
CP, CAL/(G)(K)
                                           0.3268
                                                                              0.4035
                0.3338
                         0,3313
                                  0.3289
                                                   0,3262
                                                            0.3461
                                                                     0.4406
                                                                                       0.3299
                                                                                                0,2942
                                                                                                         0.2765
                                                                                                                  1.1563
                                                                                                                          0.3267
                                                   1,2786
                                                             1.2697
                                                                     1,2344
GAMMA (S)
                1.2695
                         1.2721
                                  1,2746
                                           1,2770
                                                                              1,2472
                                                                                       1.2850
                                                                                                1,3117
                                                                                                         1.3313
                                                                                                                  1,1845
                                                                                                                           1,2277
SON VEL, M/SEC
               751.4
                          726.6
                                   700.9
                                            674.0
                                                    645.7
                                                              613.2
                                                                      571.6
                                                                               538.3
                                                                                        509.1
                                                                                                 475.4
                                                                                                          437.0
                                                                                                                   355.3
                                                                                                                            300.4
MOLE FRACTIONS
AR
               0.00836
                        0.00836
                                 0.00836
                                          0.00836
                                                  0.00836
                                                           0.00837
                                                                    0.00843
                                                                             0.00853
                                                                                      0.00860
                                                                                               0.00859
                                                                                                        0.00852
                                                                                                                 0.00838
CISI
                                          0.00000 0.00000
              0.00000
                        0.00000
                                 0.00000
                                                           0.00000
                                                                    0.00000
                                                                            0.00000
                                                                                      0.00000
                                                                                               0.00467
                                                                                                        0.01309
                                                                                                                 0.02945
CH4
              0.00000
                        0.00000
                                 0.00000
                                          0.00000 0.00003
                                                           0.00040
                                                                    0.00391 0.01037
                                                                                      0.01443
                                                                                               0.01370
                                                                                                        0.00985
                                                                                                                 0.00150
CO.
              0.04458
                        0.04258
                                 0.04012
                                          0.03706
                                                 0.03321
                                                           0.02787
                                                                    0.01734 0.00568
                                                                                                        0.00000
                                                                                      0.00102
                                                                                               0.00009
                                                                                                                 0.00000
                                 0.10926
C02
              0.10480
                        0.10680
                                          0.11232 0.11616
                                                           0.12124
                                                                    0.12931
                                                                            0.13645
                                                                                      0.13826
                                                                                               0.13503
                                                                                                        0.12938
                                                                                                                 0.11888
                                                                                              0.00214
H2
              0.02015
                        0.02214
                                0.02459
                                          0.02763 0.03135
                                                           0.03517
                                                                    0.03198 0.01862
                                                                                      0.00763
                                                                                                        0.00035
                                                                                                                 0.00001
              0.00000
                                          0.00000 0.00000
H20(L)
                       0.00000 0.00000
                                                           0.00000
                                                                    0.00000 0.00000
                                                                                      0.00000
                                                                                               0.00000
                                                                                                        0.00000
                                                                                                                0.06903
                                                                                                                        0.14120
H20
              0.12200
                       0.12000 0.11754
                                          0.11449 0.11069
                                                           0.10616
                                                                    0.10321 0.10547
                                                                                      0.10954
                                                                                               0.11637
                                                                                                        0.12483
                                                                                                                0.07052
                                                                                                                         0.00095
NH3
              0.00000
                       0.00001
                                 0.00001
                                         0.00002 0.00005
                                                           0.00010
                                                                    0.00018 0.00020
                                                                                      0.00016
                                                                                              0.00011
                                                                                                       0.00005
                                                                                                                0.00001
                                                                                                                         0.00000
N2
               0.70012 0.70012 0.70012
                                         0.70012 0.70016 0.70070 0.70563 0.71468
                                                                                      0.72035 0.71932 0.71392 0.70222 0.70012
    CASE = 0 0/F = 12.5000
                                  F/A= 0.08000
                                                  PERCENT FUEL= 7.4074
                                                                           PHI= 1,1723
P, ATM
                40.000
                         40,000
                                  40,000
                                          40.000 40.000
                                                            40.000
                                                                    40,000
                                                                              40,000 40,000
                                                                                                40,000
                                                                                                         40,000
                                                                                                                  40 000
P. PSIA
                587.8
                          587.8
                                  587.8
                                           587.8
                                                    587.8
                                                             587.8
                                                                      587.8
                                                                              587.8
                                                                                       587.8
                                                                                               537.8
                                                                                                          587.8
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                                                                                                                           587.8
              2800.0
4580.3
                                           2500.0
                                                                     2200.0
                         2700.0
                                  2600.0
                                                             2300.0
                                                                              2100.0
                                                                                       2000.0
                                                                                               1900.0
T, DEG k
                                                    2400.0
                                                                                                         1800.0
                                                                                                                  1700.0
T, DEG F
                         4400.3
                                  4220.3
                                           4040.3
                                                    3860.3
                                                             3680.3
                                                                     3500.3
                                                                              3320.3
                                                                                       3140.3
                                                                                                2960.3
                                                                                                         2780.3
                                                                                                                  2600.3
RHO, G/CC
              4.8543-3 5.0459-3 5.2478-3 5.4626-3 5.6931-3 5.9423-3 6.2133-3 6.5097-3 6.8355-3 7.1954-3 7.5952-3 8.0420-3 8.5446-3
M. MOL WT
                27,883
                         27.948
                                  27,990
                                           28.015
                                                   28.029
                                                            28.037
                                                                              28.044
                                                                                       28.045
                                                                                                28.045
                                                                     28.042
                                                                                                         28.046
                                                                                                                  28.046
CP, CAL/(G)(K)
              0.4976
                         0.4485
                                          0.3856
                                                             0.3593
                                                                                                0.3431
                                                                                                                  0.3385
                                  0.4111
                                                   0.3694
                                                                     0.3530
                                                                              0.3488
                                                                                       0.3457
                                                                                                         0.3408
              1.1958
GAMMA (S)
                         1,2093
                                  1,2226
                                                   1.2424
                                                             1.2484
                                                                     1.2526
                                                                              1.2557
                                                                                       1.2582
                                                                                                1.2604
                                                                                                         1.2625
                                                                                                                  1.2648
                                                                                                                           1,2671
SON VEL.M/SEC
                999.2
                          985.6
                                   971.7
                                            956.8
                                                    940.5
                                                             922.7
                                                                      903.9
                                                                               884.2
                                                                                        863.7
                                                                                                 842.6
                                                                                                          820.8
                                                                                                                   798.4
                                                                                                                           775.3
MOLE FRACTIONS
               0.00831
                                                                                      0.00836
AR
                        0,00833 0.00834 0.00835 0.00835 0.00836
                                                                    0.00836
                                                                             0.00836
                                                                                               0.00836
                                                                                                       0,00836
                                                                                                                 0.00836
                                                                                                                        0.00836
CO
               0.05921
                        0.05663
                                0.05491
                                         0.05377
                                                  0.05298
                                                           0.05234
                                                                                                        0,04867
                                                                    0.05174
                                                                             0.05112
                                                                                      0.05042
                                                                                               0.04962
                                                                                                                 0.04755
                                                                                                                         0.04621
C02
              0.08929
                        0.09222
                                0.09417 0.09514 0.09631
                                                           0.09699
                                                                    0.09761
                                                                             0.09825
                                                                                      0.09895
                                                                                               0.09976
                                                                                                       0,10070 0,10182
                                                                                                                        0.10317
             0.00142
                        0.00097 0.00065 0.00043 0.00028 0.00017
                                                                    0.00010 0.00006
                                                                                      0.00003 0.00002
                                                                                                       0.00001
                                                                                                                 0.00000 0.00000
H2
                                                                    0.01306 0.01363
              0.01221
                        0.01185 0.01177 0.01190 0.01218
                                                           0.01257
                                                                                      0.01431
                                                                                               0.01511
                                                                                                       0,01605
                                                                                                                0.01717 0.01852
H20
                        0.12794 0.12892 0.12938 0.12947
                                                                    0.12895 0.12844
              0.12628
                                                          0.12931
                                                                                      0.12780
                                                                                               0,12702
                                                                                                       0.12609 0.12497
                                                                                                                        0.12363
NO
                        0.00170 0.00096
                                         0.00051
                                                  0.00025
                                                           0,00011
                                                                    0.00005
0.69999
                                                                             0.00002
                                                                                      0.00001
                                                                                               0,00000
                                                                                                                0.00000 0.00000
              0.00281
                                                                                                        0.00000
N2
              0.69464
                        0.69683
                                 0.69825
                                          0.69910
                                                  0.69958
                                                           0.69985
                                                                             0.70006
                                                                                      0.70009
                                                                                               0.70011
                                                                                                        0.70011
                                                                                                                 0.70012
                                                                                                                        0.70012
              0.00030
                                         0.00002
                                                           0.00000
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o
                        0.00014 0.00006
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                                                                                                        0.00000
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                                                                                                                         0.00000
              0.00423
                        0.00275 0.00170
                                                  0.00055
                                                           0.00029
                                                                    0.00014 0.00007
                                                                                      0.00003
                                                                                                        0.00000
                                          0.00099
                                                                                               0.00001
                                                                                                                0.00000
                                                                                                                         0.00000
               0.00128
                                          0.00010 0.00004
                                                           0.00001
                        0.00062 0.00027
                                                                    0.00000 0.00000
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                                                                                               0.00000
                                                                                                        0.00000
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ADD CISI
  ADD H201L1
                          CASE= 0 0/F= 11,1111
                                                                                                                                                   F/A= 0.09000 PERCENT FUEL= 8.2569 PHI= 1.3189
P, AIM 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50
 CP, CAL/(G)(K) 0.3404
                                                                                                                                                    0.3375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.7635
                                                                                                               0.3386
                                                                                                                                                                                             0.3399
                                                                                                                                                                                                                                   0.3751
                                                                                                                                                                                                                                                                          0.5222
                                                                                                                                                                                                                                                                                                                0.5289
                                                                                                                                                                                                                                                                                                                                                       0.4134
                                                                                                                                                                                                                                                                                                                                                                                              0.3314
                                                                                                                                                                                                                                                                                                                                                                                                                                     0.2957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.2797
 GAMMA (S) 1.2719
SON VEL,M/SEC 762.1
                                                                                                          1.2738
                                                                                                                                                   1.2753
                                                                                                                                                                                          1.2750
                                                                                                                                                                                                                                1.2605
                                                                                                                                                                                                                                                                           1,2174
                                                                                                                                                                                                                                                                                                                1.2115
                                                                                                                                                                                                                                                                                                                                                      1.2398
                                                                                                                                                                                                                                                                                                                                                                                              1.2805
                                                                                                                                                                                                                                                                                                                                                                                                                                      1.3084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.3260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.1862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1,2191
                                                                                                            736.8
                                                                                                                                                   710.4
                                                                                                                                                                                                  682.4
                                                                                                                                                                                                                                        649.1
                                                                                                                                                                                                                                                                               605.2
                                                                                                                                                                                                                                                                                                                      566.9
                                                                                                                                                                                                                                                                                                                                                           536.4
                                                                                                                                                                                                                                                                                                                                                                                                  508.0
                                                                                                                                                                                                                                                                                                                                                                                                                                         474.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               436.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      345.8
  MOLE FRACTIONS
CASE= 0 0/F= 10.0000
                                                                                                                                                     F/A= 0.10000 PERCENT FUEL= 9.0909 PHI= 1.4654
CASE 0 0/F 10,0000 F/A= 0.10000 PERICENT FOLE 9.0909 PHI= 1.4654

P, ATM 0 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.50
                                                                                                                                                                                                                                                                                                                                                                                            26.618 26.622
0.3644 0.3577
  GAMMA (S) 1.1444
                                                                                                            1.1547
                                                                                                                                                       1.1709
                                                                                                                                                                                            1.1913
                                                                                                                                                                                                                                   1.2122
                                                                                                                                                                                                                                                                          1.2302
                                                                                                                                                                                                                                                                                                                 1.2440
                                                                                                                                                                                                                                                                                                                                                      1,2537
                                                                                                                                                                                                                                                                                                                                                                                              1,2604 1,2651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1,2711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.2685
                                                                                                                                                                                                                                                                                                                                                                                                                                 866.4
  SON VEL.M/SEC
                                                                        1016.6
                                                                                                               996.9
                                                                                                                                                            981.1
                                                                                                                                                                                                  967.9
                                                                                                                                                                                                                                        955.1
                                                                                                                                                                                                                                                                              941.1
                                                                                                                                                                                                                                                                                                                      925.0
                                                                                                                                                                                                                                                                                                                                                           907.0
                                                                                                                                                                                                                                                                                                                                                                                              887.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               844.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      821.4
  MOLE FRACTIONS
AR 0.00754 0.00763 0.00769 0.00773 0.00776 0.00777 0.00778 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.00779 0.0
                                                               0.09629 0.10550 0.11189 0.11577 0.11776 0.11847 0.11833 0.11764 0.11653 0.11509 0.11334 0.11125 0.10876 0.00502 0.00330 0.00198 0.00108 0.00054 0.00025 0.00011 0.00004 0.00002 0.00001 0.00000 0.00000 0.00000
  NO
                                                               0.62933 0.63764 0.64351 0.64731 0.64962 0.65097 0.65173 0.65215 0.65238 0.65250 0.00512 0.00257 0.00115 0.00046 0.00017 0.00005 0.00002 0.00000 0.00000 0.00000
  N2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.65255 0.65258 0.65259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00000 0.00000 0.00000
                                                                0.01513 0.01063 0.00692 0.00419 0.00237 0.00126 0.00062 0.00029 0.00012 0.00005 0.00002 0.00001 0.00000
                                                                  0.00449 0.00256 0.00124 0.00051 0.00019 0.00006 0.00002 0.00000 0.00000 0.00000 0.00000 0.00000
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CASE= 0 0/F= 0.0000 P, ATM 20.000 20.000 P, PSIA 293.9 293.5 T, DEG K 2800.0 2700.6 T, DEG F 4580.3 4400.1 RHO, G/CC 2.5148-3 2.6102- M, MOL WT 28.889 28.915 CP, CAL//GJIKI 0.3846 0.3704 GAMMA (S) 1.2312 1.237 SON VEL,M/SEC 996.1 980.3	293.9 293.9 293.9 2600.0 2500.0 2400.0 3 4220.3 4040.3 3860.3 3 2.7122-3 2.8219-3 2.9403-3 5 28.932 28.945 28.953 7 1.2440 1.2501 1.2559	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 2300.0 2200.0 2100.0 2000.0 3680.3 3500.3 3320.3 3140.3	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 3.7156-3 3.9221-3 4.1528-3 4.412.3-3 28.965 28.965 28.965 28.965 0.3115 0.3069 0.3025 0.2982 1.2826 1.2879 1.2933 1.2988 836.4 815.7 794.4 772.3
MOLE FRACTIONS AR 0.00930 0.0093 C0 0.00002 0.0000 C02 0.00028 0.0002 ND 0.03572 0.0312 ND2 0.00009 0.00009 N2 0.76097 0.7638 0 0.0052 0.0058 0 0.0052 0.0058	1 0.00001 0.00001 0.00000 2 0.00029 0.00029 0.00030 3 0.02704 0.02706 0.01938 3 0.00008 0.00008 0.00008 4 0.76647 0.76879 0.77086 5 0.00228 0.00143 0.00086	0.00932 0.00932 0.00932 0.00932 0.00000 0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.00030 0.01601 0.01298 0.01030 0.00790 0.00007 0.00007 0.00006 0.00060 0.77268 0.77429 0.77568 0.77687 0.00049 0.00027 0.00014 0.00070 0.20112 0.20277 0.20419 0.20540	0.00000 0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.00030 0.00601 0.00438 0.00308 0.00207 0.00005 0.00005 0.00004 0.00004 0.77787 0.77869 0.77935 0.77985 0.00003 0.00001 0.00000 0.00000
CASE= 0 0/F= 0.0000 P, ATM 20.000 20.000 P, PSIA 293.9 293.5 T, DEG k 1500.0 1400.0 T, DEG F 2240.3 2060.7 RHO, G/CC 4.7065-3 5.0426-7 M, MOL WIT 28.965 28.965 CP, CAL//GI/KI 0.2939 0.2896 GAMMA (S) 1.3044 1.3100 SON VEL,M/SEC 749.4 725.6	9 293.9 293.9 293.9 1 300.0 1200.0 1100.0 3 1880.3 1700.3 1520.3 3 5.4305-3 5.8830-3 6.4178-3 5 28.965 28.965 28.965 2 1.3161 1.3222 1.3287	20.000 20.000 20.000 20.000 293.9 293.9 293.9 293.9 1000.0 900.0 800.0 700.0 1340.3 1160.3 980.3 800.3	293.9 293.9 293.9 293.9 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3
MOLE FRACTIONS AR 0.00932 0.00932 CD2 0.00030 0.00031 N0 0.00131 0.00073 ND2 0.00003 0.00000 N2 0.78023 0.78050 02 0.20880 0.2090	0 0.00030 0.00030 0.00030 0 0.00043 0.00021 0.00009 0 0.00002 0.00002 0.00001 0 0.78067 0.78078 0.78084	0.00932 0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00030 0.00004 0.00001 0.00000 0.00000 0.0001 0.00001 0.00000 0.00000 0.78087 0.78089 0.78089 0.78089 0.20946 0.20948 0.20948 0.20949	0.00030 0.00030 0.00030 0.00030 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.78089 0.78089 0.78089 0.78089

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CASE= 0
                                  D/F=100.0000
                                                               F/A= 0.01000 PERCENT FUEL= 0.9901
                                                                                                                                                   PHI= 0.1465
                                 30,000 30,000
                                                                30,000 30,000 30.000 30.000 30.000 30.000 30.000
                                                                                                                                                                                          30,000
                                                                                                                                                                                                           30,000
 P, ATM
                                 440.9
                                                 440.9
                                                                                                                                                                        440.9
 P, PSIA
                                                                 440.9
                                                                                    440.9
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                                                                                                                                                                        700.0
                                                                                                                                                                                                             500.0
                                                                                                                                                                                                                              400.0
                                                                                                                      1000.0
                                                                                                                                       900.0
                                                                                                                                                                                            600.0
 T, DEG K
                                1500.0
                                                 1400.0
                                                                   1300.0
                                                                                   1200.0
                                                                                                  1100.0
                                                                                                                                                          800.0
                                                                                                                                                          980.3 800.3
                                                                                                                                                                                                          440.3
                                                                                                                    1340.3 1160.3
                                                                                                                                                                                                                              260.3
 T, DEG F
                                 2240.3
                                                  2060.3
                                                                   1880.3 1700.3
                                                                                                  1520.3
                                                                                                                                                                                            620.3
 RHO, G/CC
                            7.0603-3 7.5646-3 8.1465-3 8.8253-3 9.6276-3 1.0590-2 1.1767-2 1.3238-2 1.5129-2 1.7651-2 2.1181-2 2.6476-2 3.5966-2
                                                                                    28.957
                                                                                                     28.967
                                                                                                                    28.967 28.967
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 M. MOL WT 28.967 28.967
                                                                   28.967
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 CP, CAL/(G)(K)
                             0.2992
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 GAMMA (S)
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 SON VEL.M/SEC
                                  747.4
                                                   723.6
                                                                     698.9
                                                                                      673.0
                                                                                                       645.9
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 MOLE FRACTIONS
 AR
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 C02
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02
                             0.17640 0.17665
                                                                0.17662 0.17692 0.17698 0.17701 0.17702 0.17703 0.17703 0.17703 0.17703 0.17703
                                                               F/A= 0.01000 PERCENT FUEL= 0.9901 PHI= 0.1465
40.000 40.000 40.000 40.000 40.000 40.000
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          CASE= 0 0/F=100.0000
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 T, DEG K
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 T, DEG F
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 RHO, G/CC 5.0244-3 5.2162-3 5.4213-3 5.6415-3 5.8790-3 6.1364-3 6.4166-3 6.7229-3 7.0597-3 7.4316-3 7.8446-3 8.3062-3 8.8254-3 M, MOL WT 28.860 28.892 28.915 28.933 28.945 28.953 28.959 28.962 28.965 28.966 28.967 28.967 28.967
 CP, CAL/IGITET
                             0.4026
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 GAMMA ISI 1.2222
SON VEL.M/SEC 992.9
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 MOLE FRACTIONS
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                           0.01963 0.02006
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CASE= 0 0/F= 50.0000 P, ATM 50.000 50.00 P, PSIA 734.8 734.7 T, DEG K 1500.0 1400. T, DEG F 2240.3 2060. RHO, G/CC 1.1768-2 1.2609- M, MOL WT 28.970 28.97 CP, CAL//G/IK/1 0.3042 0.299 GAMMA (S) 1.2911 1.296 SON VEL,M/SEC 745.5 7216.	0 50.000 50.000 734.8 734.8 0 1300.0 1200.0 3 1880.3 1700.3 2 1.3579-2 1.4710-2 1 0 28.970 28.970 0.2955 0.2911 5 1.3023 1.3083	PERCENT FUEL = 1 50.000 50.000 734.8 734.8 1100.0 1000.0 1520.3 1340.3 1.6047-2 1.7652-2 28.970 28.970 0.2865 0.2818 1.3147 1.3217 644.3 615.9	734.8 734.8 900.0 800.0 1160.3 980.3 1.9613-2 2.2065-2 2.5 28.970 28.970 0.2764 0.2704	50.000 50.000 734.8 734.8 700.0 600.0 800.3 620.3 5217-2 2.9420-2 82.969 28.970 0.2642 0.2579 0.3507 1.3623 520.9 484.3	50.000 50.000 50.000 734.8 734.8 734.8 500.0 400.0 300.0 440.3 260.3 80.3 35304-2 4.4130-2 6.1177-2 28.970 28.970 30.120 0.2522 0.2474 0.2715 1.3737 1.3837 1.3303 444.0 398.6 331.9
MOLE FRACTIONS AR C02 0.004106 0.0410 H20(L) 0.00000 0.0000 H20 0.03886 0.0388 NO 0.00108 0.00008 NO2 0.00003 0.0000 N2 0.76517 0.7653 OH 0.00002 0.0000 O2 0.14463 0.1448	6 0.04106 0.04106 0.00000 0.00000 0.03887 0.03887 0.00036 0.00018 3 0.09002 0.00002 9 0.76553 C.76562 1 0.00000 0.00000	0.00914 0.00914 0.04106 0.04106 0.00000 0.00000 0.03887 0.03887 0.00008 0.00003 0.00001 0.00001 0.76568 0.76570 0.00000 0.00000 0.14516 0.14519	0.04106 0.04106 0 0.00000 0.00000 0 0.03887 0.03887 0 0.00001 0.00000 0 0.00001 0.00000 0 0.76571 0.76571 0 0.00000 0.00000 0	00914 0.00914 04106 0.04106 00000 0.00000 03887 0.03887 00000 0.00000 00000 0.00000 76571 0.76571 00000 0.00000 14521 0.14521	0.00914 0.00914 0.00914 0.04106 0.04106 0.04106 0.00000 0.00000 0.03820 0.03887 0.03887 0.00067 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.76572 0.76572 0.76572 0.00000 0.00000 0.00000 0.14521 0.14521 0.14521
CASE= 0 0/F= 33.3333 P, ATM 0.5000 0.500 P, PSIA 7.3 7. T, DEG K 2800.0 2700. T, DEG F 4580.3 4400. RHO, G/CC 6.0775-5 6.3698- M, MOL WT 27.927 28.22 CP, CAL/(G)(K) 0.8786 0.770 GAMMA (S) 1.1475 1.153 SON VEL,M/SEC 978.0 957.	0 0.5000 0.5000 7.3 7.3 0 2600.0 2500.0 3 4220.3 4040.3 5 6.6698-5 6.9794-5 7 5 28.460 28.635 0.6691 0.5797 2 1.1619 1.1738	0.5000 0.5000 7.3 7.3 2400.0 2300.0 3860.3 3680.3	7.3 7.3 2200.0 2100.0 23500.3 3320.3 38.0038-5 8.3945-5 8.8 28.931 2 0.4025 0.3725 0	0.5000 0.5000 7.3 7.3 2000.0 1900.0 3140.3 29.0.3 3200-5 9.2877-5 28.950 28.960 0.3521 0.3380 1.2477 1.2578 846.6 828.3	0.5000 0.5000 0.5000 7.3 7.3 7.3 1800.0 1700.0 1500.0 2780.3 2600.3 2420.3 9.8056-5 1.0384-4 1.1033-4 28.966 28.969 28.971 0.3281 0.3207 0.3148 1.2660 1.2729 1.2790 808.8 788.1 766.4
MOLE FRACTIONS AR C0 0.02321 0.0179 C02 0.03485 0.0413 H 0.00708 0.00082 H02 0.00001 0.0000 H2 0.00001 0.0000 H2 0.02479 0.028 N0 0.02479 0.0219 N02 0.00001 0.0000 N2 0.7186 0.7278 O 0.02367 0.0160 OH 0.02047 0.0169 OH 0.02047 0.0199	7 0.01265 0.00829 2 0.04713 0.05186 3 0.00239 0.00128 1 0.00001 0.00031 1 0.00197 0.00130 5 0.04681 0.04994 7 0.01915 0.01643 1 0.00001 0.00001 0 0.73535 0.74132 0 0.01044 0.00656 2 0.01048 0.01036	0.00899 0.00901 0.00505 0.00287 0.05536 0.05772 0.00064 0.00030 0.00001 0.00001 0.00022 0.00048 0.05233 0.05409 0.01387 0.01150 0.00001 0.00001 0.74587 0.74925 0.00396 0.00228 0.00770 0.00551 0.10542 0.10697	0.00151 0.00074 0 0.05919 0.06003 0 0.00013 0.00005 0 0.00027 0.00014 0 0.05535 0.05623 0 0.00935 0.00744 0 0.75173 0.75354 0 0.00125 0.09065 0 0.00380 0.00252 0	.00905 .00034 .00034 .06047 .06069 .00002 .00000 .00000 .00007 .005682 .00577 .00043 .00000 .00000 .00000 .00000 .00000 .00001 .000000	0.00905 0.00905 0.00905 0.00005 0.00002 0.00001 0.06079 0.06083 0.06085 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.05744 0.05759 0.05767 0.00318 0.00223 0.0015 0.09000 0.00000 0.00000 0.75461 0.75716 0.75756 0.00006 0.00002 0.00001 0.00006 0.00002 0.00001 0.00054 0.00029 0.00014 0.11225 0.11280 0.11321

ADD H201L1 0 0/F= 25.0000 F/A= 0.04000 PERCENT FUEL= 3.8462 PHI= 0 5862 CASE = P, ATM 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1,0000 1,0000 1,0000 1.0000 1.0000 1.0000 P, PSIA 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 T, DEG K 1500.0 1100.0 1000.0 700.0 600.0 500.0 400.0 300.0 1400.0 1300.0 1200.0 900.0 800.0 T, DEG F 1700.3 1340.3 1160.3 800.3 620.3 260.3 80.3 2240.3 2060.3 1880.3 1520.3 980.3 440.3 2.3540-4 2.5221-4 2.7162-4 2.9425-4 3.2100-4 3.5310-4 3.9234-4 4.4138-4 5.0443-4 5.8850-4 7.0621-4 8.8276-4 1.2300-3 RHO, G/CC M, MOL WT CP, CAL/(G)(K) 28.974 28.974 28.974 28.974 28.974 28,974 28.974 28.974 28.974 28.974 28.974 28.974 30.279 0.3142 1.2794 742.1 0.2902 0.2843 0.3096 0.2954 0.2779 0.2712 0.2644 0.2580 0.2523 0.9941 0.3049 0.3003 1,2902 1.3095 GAMMA (5) 1.2847 1,2960 1.3024 1,3179 1.3276 1.3386 1.3503 1,3622 1.3733 1.1628 482.2 397.0 SON VEL, M/SEC 718.4 693.8 668.0 641.2 613.0 583.4 552.1 518.5 442.1 MOLE FRACTIONS 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.00897 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.04309 0.07622 0.07624 0.07625 0.07625 0.07625 0.07625 0.07625 0.07625 0.07625 0.07625 0.07625 0.07625 0.03317 0.00081 0.00048 0.00027 0.00013 0.00006 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.75070 0.75087 0.75098 0.75105 0.75109 0.75111 0.75112 0.75112 0.75112 0.75112 0.75112 0.75112 0.75112 0.00006 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.08296 0.08314 0.08325 0.08332 0.08336 0.08338 0.08338 0.08339 0.08339 0.08339 0.08339 0.08339 CASE= 0 0/F= 25.0000 F/A= 0.04000 PERCENT FUEL= 3.8462 PHI= 0.5862 1.5000 1.5000 1.5000 1.5000 1.5000 1,5000 1,5000 1,5000 1,5000 1,5000 1.5000 1.5000 1.5000 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 2800.0 2300.0 1900.0 1800.0 2700.0 2600.0 2500.0 2400.0 2200.0 2100.0 2000.0 1700.0 1600.0 4580.3 3680.3 3140.3 2960.3 4400.3 4220.3 4040.3 3860.3 3500.3 3320.3 2780.3 2600.3 1.8393-4 1.9231-4 2.0098-4 2.1000-4 2.1947-4 2.2952-4 2.4029-4 2.5194-4 2.6467-4 2.7838-4 2.9421-4 3.1154-4 3.3102-4 28.878 28,173 28.405 28.586 28.720 28.815 28.918 28.943 28.957 28.966 28.970 28.972 28.974 0.7679 Ü.6811 0.5995 0.5276 0.4686 0.4231 0.3900 0.3667 0.3505 0.3392 0.3309 0.3244 0.3190 1,1705 1,2742 1.1542 1.1610 1.1827 1.1968 1.2115 1,2254 1.2375 1.2476 1.2559 1,2627 1.2687 807.7 976.6 925.2 910.4 895.7 827.6 786.7 764 9 957.9 940.8 880.4 864.0 846.4 MOLE FRACTIONS 0.00872 0.00879 0.00885 0.00889 0.00892 0.00894 0.00895 0.00896 0.00896 0.00896 0.00897 0.00897 AR CO 0.02414 0.01761 0.01205 0.00772 0.00463 0.00260 0.00136 0.00066 0.00030 0.00012 0.00005 0.00002 0.00000 0.05391 0.06109 0.06715 0.07185 0.07520 0.07741 0.07876 0.07952 0.07993 0.08012 0.08021 0.08025 C02 0.08027 0.00413 0.00242 0.00135 0.00071 0.00035 0.00017 0.00007 0.00003 0.00001 0.00000 0.00000 0.00000 0.00000 н 0.00002 0.00002 0.00001 0.00001 0.00001 0.00001 0.00000 0.00000 H02 0.00000 0.00000 0.00000 0.00000 0.00000

AR C02 H20(L) H20 NO N2 OH ก้อ P, ATM P, PSIA T, DEG K T. DEG F RHO, G/CC M, MOL WT CP. CAL/(G)(K) GAMMA (S) SON VEL.M/SEC

0.00075 0.00044 0.00025

0.07173 0.07322 0.07428

0.01183 0.00979 0.00795

0.00001 0.00001 0.00001

0.00196 0.00113 0.00062 0.00032 0.00015

0,00633 0,00451 0,00309 0,00204 0,00129

0.74106 0.74372

0.07647 0.07722 0.07808

0.00013 0.00006

0.07501 0.07549

0.00632 0.00491

0.00001 0.00001

0.74569 0.74714 0.74822

0,07898 0.07986 0.08066

0.00003 0.00001

0.07581 0.07601

0.00370 0.00270

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0.74904 0.74965

0.08135 0.08192

0.00007 0.00003 0.00001 0.00000

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0.75011 0.75046

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0.01651

0.00001

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0.00520

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0.07585

H2

H20

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0.00386

0.05912

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0.00001

0.71942

0.01204

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0.72678

0.00804

0.01460

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CASE=
               0/F= 20.0000
                                F/A= 0.05000
                                               PERCENT FUEL= 4.7619
                                                                        PHI= 0.7327
P, ATM
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P, PSIA
               29.4
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T, DEG K
                                                          1000.0
                                                                                                              400.0
               1500.0
                        1400.0
                                1300.0
                                         1200.0
                                                 1100.0
                                                                    900.0
                                                                            800.0
                                                                                     700.0
                                                                                             600.0
                                                                                                      500.0
                                                                                                                       300.0
                                         1700.3
                                                                  1160.3
                                                                            980.3
                                                                                             620.3
                                                                                                      440.3
T, DEG F
               2240.3
                        2060.3
                                1880.3
                                                1520.3
                                                          1340.3
                                                                                     800.3
                                                                                                              260.3
RHO, G/CC
             4.7084-4 5.0447-4 5.4328-4 5.8855-4 6.4206-4 7.0626-4 7.8474-4 8.8283-4 1.0090-3 1.1771-3 1.4125-3 1.7657-3 2.5546-3
               28,977
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                                                                                                                      31 443
M, MOL HT
CP, CAL/IGITED
              0.3186
                        0.3140
                                0.3094
                                         0.3047
                                                 0.2997
                                                          0.2943
                                                                   0.2882
                                                                           0.2816
                                                                                    0.2746
                                                                                            0.2675
                                                                                                     0.2608
                                                                                                             0.2547
                                                                                                                      0.6227
GAMMA (S) 1.2744
                                                                                                              1.3684
                        1,2795
                                 1,2848
                                         1.2905
                                                 1.2968
                                                          1.3038
                                                                   1.3122
                                                                           1,3220
                                                                                    1.3329
                                                                                            1.3447
                                                                                                     1.3568
SON VEL.M/SEC
              740.6
                         716.9
                                 692.3
                                          666.6
                                                  639.8
                                                           611.6
                                                                    582.1
                                                                            550.9
                                                                                     517.4
                                                                                             481.2
                                                                                                      441.2
                                                                                                               396.3
MOLE FRACTIONS
                                                                                   0.00888 0.00888 0.00888
                                                                                                            0.00888
AR
              0.00888 0.00888 0.00888 0.00888 0.00888 0.00888 0.00888
                                                                                                                     0.00888
                      0.09932
                                        0.09532
                                                0.09332
                                                                 0.09932
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002
              0.09932
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                                                                                                                     0.07845
H201L1
                      0.00000
                               0.00000
                                        0.00000
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                                                                                                            0.09442
H20
             0.09439
                      0.09441
                               0.09441
                                        0.09442
                                                0.09442
                                                         0.09442 0.09442 0.09442
                                                                                   0.09442
                                                                                           0.09442 0.09442
                                                                                                                     0.01597
                                                         0.00002 0.00001 0.00000
                                                                                           0.00000 0.00000
                                                                                                            0.00000
NO
              0.00065
                      0.00039
                               0.00021 0.00011
                                                0.00005
                                                                                  0.00000
                                                                                                                     0.00000
                                                         0.74402 0.74402 0.74403 0.74403
N2
              0.74369 0.74383
                               0.74392 0.74397
                                                0.74400
                                                                                           0.74403 0.74403
                                                                                                            0.74403
                                                                                                                     0.74403
              0.00005 0.00002 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
OH.
02
              0.05301 0.05315
                               0.05324 0.05330
                                                0.05333 0.05334 0.05335 0.05335
                                                                                  0.05335
                                                                                           0.05335 0.05335
                                                                                                            0.05335
                                                                                                                     0.05335
    CASE = 0 0/F = 20.0000
                                F/A= 0.05000
                                                PERCENT FUEL= 4.7619
                                                                        PHI = 0.7327
               3,0000
                                3.0000
                                                                                    3.0000
                                                                                            3,0000
P. ATM
                       3,0000
                                         3.0000 3.0000
                                                         3.0000 3.0000 3.0000
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                                                                   44.1
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P, PSIA
                44.1
                          44.1
                                 44.1
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                                                           44,1
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               2800.0
                        2700.0
                                2600.0
                                         2500.0
                                                 2400.0
                                                          2300.0
                                                                   2200.0
                                                                           2100.0
                                                                                    2000.0
                                                                                            1900.0
                                                                                                     1800.0
                                                                                                              1700.0
T, DEG K
                                                                                                     2780.3
               4580.3
                        4400.3
                                4220.3
                                         4040.3
                                                  3860.3
                                                          3690.3
                                                                  3500.3 3320.3
                                                                                    3140.3
                                                                                            2960.3
T. DEG F
              3.6876-4 3.8527-4 4.0242-4 4.2033-4 4.3918-4 4.5921-4 4.8070-4 5.0399-4 5.2942-4 5.5713-4 5.8848-4 6.2314-4 6.6210-4
RHO, G/CC
                                                 28.830
                                                                                                     28,973
M. MOL WT
                28.242
                        28.453
                                 28.619
                                         28,743
                                                          28.889
                                                                   28,926
                                                                          28.949
                                                                                    28.962
0.3523
                                                                                             28,969
                                                                                                              28.975
                        0.6578
               0.7351
                                0.5839
                                         0.5178
                                                  0.4627
                                                          0.4201
                                                                   0.3890
                                                                           0.3672
                                                                                            0.3419
                                                                                                     0.3342
                                                                                                              0,3283
CP. CAL/(G)(K)
               1.1563
                        1.1630
                                1.1723
                                         1.1842
                                                  1.1979
                                                          1.2119
                                                                   1,2251
                                                                           1,2364
                                                                                    1.2456
                                                                                             1.2531
                                                                                                     1.2592
                                                                                                              1,2646
GAMMA (S)
                976.3
                         957.9
                                          925.4
                                                   910.5
                                                           895.7
                                                                            863.5
                                                                                     845.7
                                                                                             826.6
                                                                                                      806.5
                                                                                                               785.4
SON VEL.M/SEC
                                  941.0
                                                                    880.2
MOLE FRACTIONS
              0.00866 0.00872 0.00877 0.00881 0.00884 0.00886 0.00887 0.00887
                                                                                   0.00888
                                                                                          0.00888 0.00888 0.00888
AR
CO
              0.02668 0.01940 0.01326 0.00850 0.00509 0.00286 0.00150 0.00073 0.00033 0.00014 0.00005
                                                                                                            0.00002
                                                                                                                     0.00000
              0.07012 0.07813 0.08484 0.09002 0.09373 0.09616 0.09765 0.09850 0.09894 0.09916 0.09926 0.09930 0.09931
C02
              0.00309 0.00181 0.00101 0.00053 0.00026 0.00012 0.00005 0.00002 0.00001 0.00000 0.00000 0.00000
н
H02
              0.00002 0.00002
                               0.0000, 0.00001 0.00001 0.00001 0.00000
                                                                         0.00000 0.00000
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                                                                                                            0.00000 0.00000
              0.00433 0.00308
                               0.00210 0.00136 0.00084 0.00049 0.00027
                                                                          0.00014 0.00007
                                                                                           0.00003 0.00001
                                                                                                            0.00000 0.000000
H2
              0.07811 0.08237
                                0.08576 0.08836 0.09029
                                                         0.09168 0.09265
                                                                          0.09332 0.09375
                                                                                           0.09403 0.09421
                                                                                                            0.09431
H20
                                                                          0.00502 0.00390
                                                                                          0.00294
                                                                                                    0.00215
NO
              0.01814 0.01565
                               0.01336 0.01129 0.00944 0.00778 0.00631
                                                                                                            0.00151
                                                                          0.00001
                                                         0.00001 0.00001
                                                                                   0.00001 0.00000 0.00000
N02
              0.00001 0.00001
                                0.00001
                                        0.00001
                                                0.00001
                                                                                                            0.00000
                                                                 0.73957
112
              0.71608 0.72273
                               0,72814 0.73237
                                                 0.73555
                                                         0.73788
                                                                          0.74080
                                                                                  0.74169
                                                                                          0.74236 0.74285
                                                                                                            0.74322
                                                                                                                     0.74350
                                                                          0.00018
                                                                                                            0.00001
0
               0.00708 0.00467
                                0.00299 0.00185
                                                 0.00111
                                                         0.00064 0.00035
                                                                                   0.00009
                                                                                          0.00004 0.00002
                                                                                                                     0.00000
                                                         0.00379 0.00259
                                                                                                            0.00019 0.00009
OH
               0.01604 0.01267
                                0.00976 0.00732
                                                0.00535
                                                                         0.00171
                                                                                   0.00108 0.00065 0.00037
                               0.04999 0.04957 0.04950
                                                         0.04973 0.05017 0.05071 0.05126 0.05176 0.05220
                                                                                                            0.05255 0.05282
02
               0.05164 0.05073
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T, DEG K 1500.0 1400 T, DEG F 2240.3 2060	000 4.0000 4.0000 4 8.8 58.8 58.8 0.0 1300.0 1200.0 1 0.3 1880.3 1700.3 1 0.3 1.886.3 1.772-3 1.2 979 28.979 28.979 2 183 0.3137 0.3089 0 747 1.2797 1.2853 1	.0000 4.0000 4.0000 58.8 58.8 58.8 100.0 1000.0 900.0 520.3 1340.3 1160.3	58.8 58.8 800.0 700.0 980.3 800.3 1.7658-3 2.0181-3 2. 28.979 28.979	4,0000 4,0000 4,0000 4,0000 58.8 58.8 58.8 58.8 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 3544-3 2,8253-3 3,5316-3 5,2582-3 28,979 28,979 28,979 32,360 0,2706 0,2635 0,2571 0,4542 1,3394 1,3517 1,3637 1,2067 480.2 440.4 395.6 305.0
MOLE FRACTIONS AR C02 0.11801 0.118 H20(L) 0.00000 0.000 H20 0.1122 0.111 N0 0.00043 0.000 N2 0.73685 0.73 OH 0.00003 0.000 02 0.02365 0.023	801 0.11802 0.11802 0. 0000 0.00000 0.50000 0. 223 0.11224 0.11224 0. 026 0.00014 0.00007 0. 694 0.73700 0.73703 0. 001 0.00000 6.00000 0.	00880 0.00880 0.00890 11802 0.11802 0.11802 00000 0.60000 0.00000 11224 0.11224 0.11224 00003 0.00001 0.00000 73705 0.73706 0.73707 00000 0.00000 0.00000 02386 0.02387 0.02388	0.11802 0.11802 0 0.00000 0.00000 0 0.11224 0.11224 0 0.00000 0.00000 0 0.73707 0.73707 0 0.00000 0.00000 0	0.00880 0.00880 0.00880 0.00880 0.11802 0.11802 0.11802 0.11802 0.00000 0.00000 0.00000 0.10448 0.11224 0.11224 0.00776 0.00000 0.00000 0.00000 0.00000 0.73707 0.73707 0.73707 0.73707 0.00000 0.00000 0.00000 0.00000 0.02388 0.02388 0.02388 0.02388
T, DEG K 2800.0 2700 T, DEG F 4580.3 4400 RHO, G/CC 7.3820-4 7.708 M, MOL HT 28.268 28. CP, CAL/IGI(K) 0.7097 0.66 GAMMA (S) 1.1182 1.118	000 6,0000 6,0000 6 82.2 88.2 88.2 0.0 2600.0 2500.0 2 0.3 4220.3 4040.3 3 5-4 8.0494-4 8,4069-4 8,7 464 28,622 28,743 2 438 0,5792 0,5190 0 642 1,1726 1,1835 1	88.2 88.2 88.2 8400.0 2300.0 2200.0 860.3 3680.3 3500.3	88.2 88.2 2100.0 2000.0 3320.3 3140.3	6.0000 6.0000 6.0000 6.0000 88.2 88.2 88.2 88.2 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 11,50-3 1,1771-3 1,2464-3 1,3243-3 28,972 28,976 28,978 28,979 0,3444 0,3373 0,3317 0,3270 1,2505 1,2562 1,2610 1,2655 825,7 805.5 784.3 762.2
MOLE FRACTIONS AR CO 0.00858 0.000 CO 0.03023 0.022 CO2 0.08429 0.09 H 0.00235 0.00 H02 0.00002 0.000 H20 0.09675 0.100 N0 0.01367 0.01 N02 0.00001 0.000 N2 0.71214 0.713 O 0.00378 0.00 OH 0.01305 0.01 O2 0.002949 0.02	238 0.01564 0.01025 0.354 0.10092 0.10681 0.1039 0.00042 0.001 0.0001 0.0001 0.0001 0.00554 0.00554 0.00554 0.00554 0.00554 0.00554 0.00554 0.00554 0.00554 0.00554 0.00554 0.00564 0.00564 0.00564 0.00564 0.00564 0.00564	00875 0.00877 0.00878 00627 0.00357 0.00189 11114 0.11409 0.11593 00021 0.00010 0.00004 00001 0.00000 0.00000 01050 0.00062 0.00034 10848 0.10980 0.11071 00640 0.00521 0.00419 00000 0.00000 0.00000 73011 0.73223 0.73371 00053 0.00030 0.00016 000407 0.00286 0.00195 002297 0.02245 0.02229	0.00092 0.00042 0.11754 0.00002 0.00001 0.00001 0.000000	0.00880

P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAPMA (S) SON VEL,M/SEC	10.000 147.0 1500.0 2240.3	14.6540 10.000 147.0 1400.0 2060.3 2.5227-3 28.981 0.3215 1.2712 714.5	F/A= 0 10.000 147.0 1300.0 1880.3 2.7168-3 28.981 0.3170 1.2761 689.9	10.000 147.0 1200.0 1700.3	PERCENT F 10.000 147.0 1100.0 1520.3 3.2108-3 28.981 0.3071 1.2875 637.4	10.000 147.0 1000.0 1340.3	10.000 147.0 900.0 1160.3	PHI= 1.000 10.000 147.0 800.0 980.3 4.4148-3 28.981 0.2880 1.3124 548.8	10.000 147.0 700.0 800.3	10,000 147,0 600.0 620.3 5,8864-3 28,981 0,2731 1,3353 479,4	10.000 147.0 500.0 440.3 7.0637-3 28.981 0.2658 1.3477 439.7	10,000 147,0 400.0 260.3 8.8296-3 28,981 0.2590 1,3600 395.1	10.000 147.0 300.0 80.3 1.3434-2 33.070 0.3606 1.2258 304.1
MOLE FRACTIONS AR CO CO2 H20(L1 H20 (N0 N2 OH C2	0.00873 0.00004 0.13311 0.00002 0.0000 0.12666 0.00001 0.73140 0.00001 0.00002	0.00873 0.00001 0.13314 0.00001 0.00000 0.12667 0.00000 0.73142 0.00000 0.00001	0.00873 0.00000 0.13315 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00273 0.00000 0.13316 0.00000 0.00000 0.12668 C.00000 0.73143 0.00000 0.00000	0.00000 0.13316 0.00000 0.00000 0.12668 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00673 0.00000 0.13316 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000 0.00000	0.00873 0.00000 0.13316 0.00000 0.12364 0.00304 0.00000 0.73143 0.00000 0.00000
CASE O P. ATM P. PSIA T. DEG K T. DEG F RHO, G/CC M. MOL WT CP. CAL/IG)IK1 GAMMA IS1 SON VEL,M/SEC	15.000 220.4 2800.0 4580.3	14.6540 15.000 220.4 2700.0 4400.3 1.9265-3 28.455 0.6021 1.1702 960.8	F/A= 0 15.000 220.4 2600.0 4220.3 2.0101-3 28.590 0.5540 1.1772 943.5	15.000 220.4 2500.0 4040.3	PERCENT 1 15.000 220.4 2400.0 3860.3 2.1924-3 28.784 0.4701 1.1953 910.3	15.000 220.4 2300.0 3680.3	15.000 220.4 2200.0 3500.3	220.4 2100.0 3320.3 2.5181-3 28.928 0.3855	15.000 220.4 2000.0 3140.3	15.000 220.4 19J0.0 2960.3 2.7866-3 28.964 0.3545 1.2439 823.7	15.000 220.4 1800.0 2780.3 2.9423-3 28.972 0.3444 1.2509 803.9	15.000 220.4 1700.0 2600.3 3.1158-3 28.977 0.3369 1.2568 783.0	15.000 220.4 1600.0 2420.3 3.3109-3 28.979 0.3309 1.2619 761.1
MOLE FRACTIONS AR CO CO2 H HO2 H2 H20 N0 N02 N2 O OH	0.00852 0.03344 0.09656 0.00158 0.00001 0.00569 0.11267 0.00887 0.00001 0.70960 0.00156 0.00903	0.00857 0.02621 0.10453 0.00097 0.00001 0.00439 0.11615 0.00689 0.71470 0.00092 0.00670	0.00861 0.01989 0.11148 0.00057 0.00001 0.00332 0.11895 0.00520 0.00000 0.71896 0.00052	0.00865 0.01458 0.11458 0.00032 0.00000 0.00246 0.12116 0.00381 0.00000 0.72241 0.00028 0.00334	0.01030 0.12195 0.00017 0.00000 0.00177 0.12284 0.00270 0.72511 0.00014 0.00224	0.00009 0.00000 0.00125 0.12409 0.00184 0.00000 0.72716 0.00007 0.00144	0.00871 0.00455 0.12821 0.00004 0.00000 0.0085 0.12499 0.00121 0.00000 0.72865 0.00003 0.00089	0.13009 0.00002 0.00000 0.00056 0.12562 0.00076 0.00000 0.72970 0.00001 0.00052	0.00872 0.00166 0.13135 0.00001 0.00000 0.00035 0.12604 0.00045 0.00000 0.73041 0.00000 0.00029 0.00071	0.00873 0.00092 0.13216 0.00000 0.000021 0.12632 0.00026 0.73086 0.00000 0.00010	0.00873 0.00048 0.13264 0.00000 0.00000 0.12648 0.00014 0.00000 0.73113 0.00000 0.00007	0.00873 0.00023 0.13291 0.00000 0.00000 0.12658 0.00007 0.73128 0.00000 0.00003 0.00003	0.00873 0.00010 0.13305 0.00000 0.00000 0.00003 0.12663 0.00003 0.73136 0.00000 0.73136 0.00000 0.00001

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CASE= 0 0/F= 14.2857 F/A= 0.07000 PERCENT FUEL= 6.5421 PHI= 1.0258
P, ATM 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.000 20.00
                                                                                                                                                                                                      1.5548
 CP, CAL/IGHIKI
                          0.3261
                                             0.3226
                                                            0.3188
                                                                           0.3146
                                                                                          0.3101
                                                                                                          0.3052
                                                                                                                         0.2996
                                                                                                                                        0.2986
                                                                                                                                                       0.3045
                                                                                                                                                                       0.2837
                                                                                                                                                                                      0.2685
                                                                                                                                                                                                                     0.3299
 GAMMA (S)
                          1.2679
740.5
                                            1,2716
                                                           1.2758
                                                                           1.2804
                                                                                           1.2857
                                                                                                          1.2916
                                                                                                                         1.2989
                                                                                                                                         1,3038
                                                                                                                                                       1.3039
                                                                                                                                                                       1,3248
                                                                                                                                                                                     1.3443
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 SON VEL, M/SEC
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MOLE FRACTIONS
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         CASE= 0 0/F= 14.2857
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 P, AT'
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 RHO, G/CC
                         3.7036-3 3.8586-3 4.0221-3 4.1953-3 4.3796-3 4.5767-3 4.7888-3 5.0189-3 5.2707-3 5.5485-3 5.8568-3 6.2014-3 6.5890-3
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 M. MOL HT
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                                                                                           28,750
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 CP, CAL/IGITKI
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 GAMMA ISI
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 SON VEL.M/SEC
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 MOLE FRACTIONS
                           0.00853 0.00857
                                                          0.00860 0.00863 0.00865 0.00866 0.00867 0.00867 0.00867 0.00867 0.00867 0.00867
 AR
 CO
                 0.03137 0.02527
0.10209 0.10881
                                                          0.02009 0.01591 0.01275
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                                                          0.11450 0.11937 0.12253 0.12489 0.12628 0.12698 0.12732 0.12753 0.12770 0.12789 0.12812
 C02
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 H20
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NO 0,00708 0.00527
N2 0,71115 0,71538
O 0,00693 0.00505
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                                                                                                      0.102630 0.00041 0.00017 0.00006 0.00002 0.00001
0.72504 0.72588 0.72629 0.72647 0.72653 0.72656
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ADD CIST ADD H20(L)

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CASE= 0 0/F= 12.5000
                                                                           F/A= 0.08000 PERCENT FUEL= 7.4074 PHI= 1.1723
CASE= 0 0/F= 12,5000 F/A= 0,08000 PERCENT FUEL= 7,4074 PHI= 1,1723
P, ATM 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,000 40,00
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MOLE FRACTIONS
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NH3
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          CASE= 0 0/F= 12,5000
                                                                                                               PERCENT FUEL= 7.4074
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                                                                             F/A= 0.08000
P, ATM 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50,000 50
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M. MOL NT
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CP, CAL/IGIIKI
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GAMMA (S)
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SON VEL.M/SEC
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MOLE FRACTIONS
AR 0.00832 0.00833 0.00834 0.00835 0.00835 0.00836 0.00836 0.00836 0.00836 0.00836 0.00836 0.00836
CO
                    0.05858 0.05626
0.09003 0.09266
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co2
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H2
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H20
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NH3
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                                                                                                                                   0.00000
                                                                                                                                                         0.00000 0.00000 0.00000 0.00000
0.00004 0.00002 0.00001 0.00000
                                                                                                                                                                                                                                      0.00000 0.00000
NO
                                   0.00256
                                                      0.00154
                                                                                             0.00045
                                                                                                                  0.00022
                                                                                                                                   0.00010
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0.70011 0.70012
                                                                          0.00086
                                                                                                                0.69964 0.69988 0.70000 0.70006 0.70009
0.00001 0.00000 0.00000 0.00000 0.00000
N2
                                   0.69524
                                                      0.69720
                                                                                             0.69921
                                                                                                                                                                                                                  0.70011
                                                                          0.69846
                                                                                            0.00002
                                   0.00025
                                                      0.00011 0.00005
                                                                                                                                                                                                                  0.00000
0
                                                                                                                                                                                                                                     0.00000 0.00000
                                  0.00383 0.00248 0.00152 0.00089 0.00049 0.00026 0.00013 0.00006 0.00002 0.00001
OH
                                                                                                                                                                                                                                     0.00000 0.00000
                                  0.00106 0.00051 0.00022 0.00008 0.00003 0.00001 0.00000 0.00000 0.00000
                                                                                                                                                                                                                  0.00000
                                                                                                                                                                                                                                       0.00000 0.00000
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ADD CISI ADD H20(L)

CASE= 0 0/F= P, ATM 0.5000 P, PSIA 7.3 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 1.0816-4 M, MOL HT 26.626 CP, CAL/IGHIKI 0.3460 GAMMA ISI 1.2751 SON VEL,M/SEC 772.8	10.0000 F/A= 0 0.5000 0.5000 7.3 7.3 1400.0 1800.0 2060.3 1800.3 1.5589-4 1.2480-4 26.626 0.3444 0.3432 1.2767 1.2779 747.1 720.2	0.5000 7.3 1200.0 1700.3 1.3520-4 1. 26.626 0.3425	ERCENT FUEL = 9 0.5000 0.5000 7.3 7.3 1100.0 1000.0 1520.3 1340.3 4749-4 1.6225-4 26.626 26.627 0.3426 0.3440 1.2786 1.2773 662.7 631.5	.0909 PHI= 1.465 0.5000 0.5000 7.3 7.3 900.0 800.0 1160.3 980.3 1.8033-4 2.0509-4 26.636 26.926 0.3590 0.6710 1.2687 1.1862 597.0 541.3	0.5000 7.3 700.0 800.3	0.5000 7.3 600.0 620.3 2.9157-4 28.710 0.3983 1.2486 465.8	0.5000 7,3 500.0 440.3 3.5268-4 28.940 0.3075 1.2996 432.1	7.3 400.0 260.3 4.4154-4 6.6 28.985 0.2771	0,5000 7,3 300.0 80.3 6802-4 32,889 1,7368 1,1302 292.8
MOLE FRACTIONS AR C(S) C(S) C00000 CH4 0.00000 C02 0.07085 H 0.00001 H2 0.05982 H20(L) 0.10581 NH3 0.00000 N2 0.65260	0.00000 0.00000 0.00000 0.00000 0.09959 0.09531 0.07439 0.7868 0.00000 0.00000 0.06336 0.06764 0.00000 0.00000 0.10226 0.09798 0.00000 0.00000	0.00000 0 0.00000 0 0.00000 0 0.08390 0 0.00000 0 0.07287 0 0.00000 0 0.09276 0	0.00779 0.00779 0.00000 0.60000 0.00000 0.00001 0.08367 0.07574 0.09031 0.09824 0.00000 0.00000 0.07928 0.08718 0.00000 0.00000 0.08634 0.07843 0.00000 0.00001 0.65260 0.65261	0.00779 0.00788 0.00000 0.00000 0.00017 0.00561 0.06574 0.12391 0.00000 0.00000 0.09657 0.09586 0.00000 0.00000 0.6875 0.06035 0.00001 0.00004 0.65282 0.65993	0.00799 0.02812 0.01261 0.00783 0.12982 0.00000 0.05249 0.00000 0.09203 0.00005 0.66907	0.00805 0.04207 0.01643 0.00063 0.12058 0.00000 0.01777 0.00000 0.12038 0.00004 0.67404	0.00801 0.05379 0.01420 0.00002 0.11093 0.00000 0.00317 0.00000 0.13873 0.00002 0.67113	0.06646 0.00811 0.00000 0.10223 0.00000 0.00022 0.00000 0.15186 0.00001	.00780 .08096 .08096 .00008 .09284 .00000 .00000 .10901 .05615 .00000 .65296
CASE: 0 0/F= P, ATM 1.0000 P, PSIA 14.7 T, DEG k 2800.0 T, DEG F 4580.3 RHO, G/CC 1.1335-4 M, MOL HT 26.042 CP, CAL/(GIIK) 0.8378 GAMMA 'S) 1.1565 SON VEL,M/SEC 1016.8	4400.3 4220.3 1.1851-4 1.2375-4 26.257 26.402 0.6905 0.5730	1,0000 14,7 2500.0 4040.3 1,2915-4 1, 26,494 0,4901	ERCENT FUEL= 9 1.0000 1.0000 14.7 14.7 2400.0 2300.0 3860.3 3680.3 3481-4 1.4085-4 26.550 26.583 0.4363 0.4027 1.2250 1.2392 959.5 944.2	.0909 PHI= 1.465 1.0000 14.7 14.7 2200.0 2100.0 3500.3 3320.3 1.4736-4 1.5445-4 26.603 26.614 0.3821 0.3694 1.2497 1.2571 927.0 908.2	1.0000 14.7 2000.0 3140.3	1.3000 14.7 1900.0 2960.3 1.7076-4 26.623 0.3562 1.2661 866.8	1.0000 14.7 1800.0 2780.3 1.8026-4 26.625 0.3526 1.2690 844.6	14.7 1700.0 2600.3 1.9087-4 2.0 26.626 0.3499	1,0000 14,7 1600.0 2420.3 0280-4 26,626 0,3478 1,2733 797.6

CASE= 0 0/F= P, ATM 30.000 P, PSIA 440,9 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 3.7740-3 M, MOL WT 28.904 CP, CAL/IGIIKI 0.3770 GAMMA (S) 1.2343 SON VEL,M/SEC 997.1	0.0000 F/A= 0.00000 30.000 30.000 30.000 440.9 440.9 440.9 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 3.9166-3 4.0692-3 4.2335-3 28.924 28.939 28.949 0.3649 0.3546 0.3459 1.2402 1.2460 1.2515 981.1 964.7 948.0	30.000 30.000 30.000 440.9 440.9 440.9 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3 4.4109-3 4.6033-3 4.8130-3 9 28.955 28.960 28.962 0.3384 0.3319 0.3261 1.2569 1.2622 1.2673	HI = 0.0000 30.000	30.000 30.000 30.000 440.9 440.9 440.9 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 5.8831-3 6.2292-3 6.6185-3 28.965 28.965 28.965 0.3069 0.3025 0.2982 1.2879 1.2933 1.2988 815.7 794.4 772.3
MOLE FRACTIONS AR 0.00930 C0 0.00002 C02 0.0028 N0 0.03577 N02 0.00011 N2 0.76131 0 0.00428 02 0.18891	0.00931 0.00931 0.00932 0.00001 0.00001 0.00090 0.00029 0.00029 0.00030 0.03131 0.02706 0.02207 0.00011 0.00010 0.00010 0.76410 0.76662 0.76889 0.00287 0.00186 0.00117 0.19200 0.19474 0.19716	0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.01938 0.01601 0.01298 0.00009 0.00009 0.00008 0.77091 0.77272 0.77430 0.00070 0.00040 0.00022	0.00932 0.00932 0.00932 0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.01030 0.00798 0.00601 0.00008 0.00007 0.00006 0.77569 0.77687 0.77787 0.00011 0.00006 0.00002 0.20420 0.20540 0.20641	0.00932 0.00932 0.00932 0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.00438 0.00308 0.00207 0.00006 0.00005 0.00004 0.77869 0.77935 0.77985 0.00001 0.00000 0.00000 0.20724 0.20790 0.20841
CASE= 0 0/F= P, ATM 30.000 P, PSIA 440.9 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 7.0597-3 M, MOL WT 28.965 CP, CAL/IGIKI 0.2939 GAMMA (S) 1.3044 SON VEL,M/SEC 749.4	0.0000 F/A= 0.00000 30.000 30.000 30.000 440.9 440.9 440.9 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 7.5640-3 8.1458-3 8.8246-3 28.965 28.965 28.965 0.2898 0.2856 0.2815 1.3102 1.3161 1.3222 725.6 700.8 674.9	30.000 30.000 30.000 440.9 440.9 440.9 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 9.6268-3 1.0589-2 1.1766-2 28.965 28.954 28.964 0.2773 0.2730 0.2681 1.3287 1.3356 1.3440	HI= 0.0000 30.000 30.000 30.000 440.9 440.9 440.9 800.0 700.0 600.0 980.3 800.3 620.3 1.3237-2 1.5128-2 1.7649-2 28.964 28.964 28.964 0.2624 0.2569 0.2512 1.3536 1.3644 1.3757 557.5 523.6 486.8	30.000 30.000 30.000 440.9 440.9 440.9 500.0 400.0 300.0 440.3 260.3 80.3 2.1179-2 2.6474-2 3.5298-2 28.964 28.964 28.964 0.2461 0.2422 0.2402 1.3865 1.3952 1.3999 446.1 400.3 347.2
MOLE FRACTIONS AR 0.00932 C02 0.00030 NO 0.00131 NO2 0.00004 N2 0.78023 O2 0.20880	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00078 0.00043 0.00021 0.00003 0.00002 0.00002 0.78050 0.78067 0.78078 0.20907 0.20925 0.20936	0.00030 0.00030 0.00030 0.00009 0.00004 0.00001 0.00001 0.00001 0.00001 0.78084 0.78087 0.78089	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.78089 0.78089 0.78089 0.20948 0.20949 0.20949	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.78089 0.78089 0.78089 0.20949 0.20949 0.20949

CASE= 0 0/F=100.0000 F/A P, ATM 40.000 40.000 40.0 P, PS1A 587.8 587.8 58 T, DEG K 1500.0 1400.0 130 T, DEG F 2240.3 2060.3 188 RHO, G/CC 9.4138-3 1.0086-2 1.0086 M, MOL WT 28.967 28.967 28. CP, CAL/(GIIK) 0.2992 0.2949 0.22 GAMMA (S) 1.2975 1.3031 1.33 SON VEL,M/SEC 747.4 723.6 69	00 40,000 40,000 40,000 1,8 587.8 587.8 587.8 597.8 1,0 1200.0 1100.0 1000.0 1,3 1700.3 1520.3 1340.1 1,2 1,1767-2 1,2837-2 1,4121-1 1,67 28.967 28.967 28.967 0,2863 0,2820 0,277.8 1,3150 1,3215 1,328	3 587.8 587.8 587.8 900.0 800.0 700.0 8 1160.3 980.3 800.3 1.5689-2 1.7651-2 2.0172-2 2 28.967 28.967 28.967 0.2723 0.2666 0.2606 1.3368 1.3465 1.3574	40.000 40.000 40.000 40.000 587.8 587.8 587.8 587.8 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 28.967 28.967 28.967 29.521 0.2546 0.2492 0.2448 0.2668 1.3698 1.3799 1.3693 1.3449 485.5 445.0 399.4 337.7
MOLE FRACTIONS AR CO2 0.00923 0.00923 0.00928 0.02088 0.02088 0.02 H20(L) 0.00000 0.01962 0.01962 0.01962 0.00072 NO2 0.00004 0.00003 0.07 OH 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001	888 0.02088 0.02088 0.02088 000 0.00000 0.00000 0.00000 62 0.01962 0.01962 0.01962 339 0.00020 0.00009 0.00001 002 0.00001 0.00001 0.00001 003 0.77313 0.77318 0.7732 000 0.00000 0.00000 0.00001	8 0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.01962 0.01962 0.01962 0.00001 0.00000 0.00000 0.00001 0.00000 0.00000 0.77322 0.77323 0.77323 0.00000 0.00000 0.00000	0.00923 0.00923 0.00923 0.00923 0.02088 0.02088 0.02088 0.02088 0.00000 0.00000 0.01877 0.01962 0.00085 0.00000 0.00000 0.00000 0.00005 0.00005 0.00000 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.77323 0.70000 0.00000 0.17703 0.17703 0.17703 0.17703
P, ATM 50.000 50.000 50. P, PSIA 734.8 734.8 73 T, DEG K 2800.0 2700.0 260 T, DEG F 4580.3 4400.3 422	000 50,000 50,000 50,000 1,8 734,8 734,8 734,1 1,0 2500,0 2400,0 2300,0 1,3 4040,3 3860,3 3680,3 1,3 4040,3 3860,3 3680,3 1,24 76708-20 20 28,936 28,947 28,95 0,349 0,341 1,2425 1,2484 1,248	3 734.8 734.8 734.8 2000.0 2200.0 2100.0 2000.0 3140.3 3140.3 38.0209-3 8.4038-3 8.8247-3 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	50.000 50.000 50.000 50.000 734.8 734.8 734.8 734.8 734.8 1900.0 1800.0 1700.0 1600.0 29.0 1600.0 220.3 1.2895.3 9.8058-3 1.0383-2 1.1032-2 28.967 28.967 28.967 28.967 0.3036 0.3036 1.2056 1.2956 1.2920 834.1 813.6 792.3 770.3 770.3
MOLE FRACTIONS AR CO	143 0.0026 0.00015 0.00001 142 0.02060 0.02072 0.0207 104 0.00002 0.00001 0.0000 103 0.00002 0.00002 0.0000 106 0.0004 0.00002 0.0000 101 0.01842 0.01876 0.0190 105 0.02104 0.01768 0.0146 101 0.00011 0.00010 0.00011 105 0.76182 0.76380 0.7655 102 0.00083 0.00050 0.0002 103 0.0024 0.00164 0.00111	8 0.0004 0.00002 0.00001 0.02083 0.02086 0.02087 0.00000 0.00000 0.00000 0.00001 0.00001 0.00001 0.01921 0.01935 0.01945 0.01185 0.00941 0.00729 0.00000 0.00008 0.00008 0.76706 0.76837 0.75949 0.00016 0.00008 0.00004 0.00016 0.00008 0.00004	0.00923 0.00923 0.00923 0.00923 0.00000 0.00000 0.00000 0.00000 0.02088 0.02088 0.2088 0.02088 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.01952 0.01957 0.01959 0.01961 0.00550 0.00401 0.00281 0.00189 0.00007 0.00006 0.00005 0.00005 0.77043 0.77119 0.77180 0.77227 0.00002 0.00001 0.00000 0.00000 0.00002 0.00001 0.00000 0.000003 0.17415 0.17494 0.17556 0.17604

CASE= O P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0.7F= 0.5000 7.3 1500.0 2240.3 1.1769-4 28.972 0.3096 1.2847 743.7	33.3333 0.5000 7.3 1400.0 2060.3 1.2610-4 28.972 0.3049 1.2903 720.0	F/A= 0. 0.5000 7.3 1300.0 1880.3 1.3580-4 28.972 0.3003 1.2960 695.3	0.5000 7.3 1200.0 1700.3	0.5000 7.3 1100.0 1520.3	TUEL = 2, 0.5000 7,3 1000.0 1340.3 1.7654-4 28.972 0.2860 1.3154 614.4	0.5000 7.3 900.0 1160.3	PHI= 0.439 0.5000 7.3 800.0 980.3 2.2067-4 28.972 0.2742 1.3336 553.3	0.5000 7.3 700.0 800.3	0.5000 7.3 600.0 620.3 2.9423-4 28.972 0.2612 1.3561 483.2	0.5000 7.3 500.0 440.3 3.5307-4 28.972 0.2551 1.3678 443.0	0.5000 7.3 400.0 28.972 0.2499 1.3784 397.8	0.5000 7.3 300.0 80.3 5.8845-4 28.972 0.2461 1.3864 345.5
MOLE FRACTIONS AR CO2 H20 N0 N2 OH O2	0.00905 0.06085 0.05771 0.00095 0.75786 0.00006	0.00905 0.06086 0.05773 0.00057 0.75806 0.00002 0.11371	0.00905 0.06086 0.05774 0.00031 0.75819 0.00001 0.11384	0.00905 0.06096 0.05774 0.00016 0.75827 0.00000 0.i1392	0.00905 0.06086 0.05774 0.00007 0.75831 0.00000 0.11397	0.00905 0.06086 0.05774 0.60003 0.75833 0.00000 0.11399	0.00905 0.06096 0.05774 0.00001 0.75834 0.00000 0.11400	0.00905 0.06086 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.05774 0.00000 0.75835 0.00000 0.11400
CASE= C P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	0 0/F= 1.0000 14.7 2800.0 4580.3 1.2265-4 28.180 0.7609 1.1558 977.2	33.3333 1.0000 14.7 2700.0 4400.3 1.2824-4 28.411 0.6720 1.1630 958.6	F/A= 0. 1.00c0 14.7 2600.0 4220.3 1.3401-4 28.590 0.5903 1.1729 941.7	03000 1.0000 14.7 2500.0 4040.3 1.4001-4 28.722 0.5194 1.1854 926.2	PERCENT F 1.0000 14.7 2400.0 3860.3 1.4631-4 28.814 0.4619 1.1997 911.5	1.0000 14.7 2300.0 3680.3	9126 F 1.0000 14.7 2200.0 3500.3 1.6018-4 28.916 0.3856 1.2285 881.5	PHI= 0.439 1.0000 14.7 2100.0 3320.3 1.6795-4 28.940 0.3627 1.2408 865.2	1.0000 14.7 2000.0 3140.3	1.0000 14.7 1900.0 2960.3 1.857.4 28.963 0.3351 1.2599 829.0	1.0000 14.7 1800.0 2780.3 1.9612-4 28.967 0.3266 1.2671 809.1	1.0000 14.7 1700.0 2600.3 2.0767-4 28.970 0.3200 1.2735 788.3	1.0000 14.7 1600.0 2420.3 2.2066-4 28.971 0.3144 1.2793 766.4
MOLE FRACTIONS AR CO CO2 H H02 H2 H20 N0 N0 N02 N2 O OH	0.00881 0.01919 0.04001 0.00441 0.00002 0.00293 0.04195 0.02508 0.00001 0.72508 0.01686 0.01814 0.09752	0.04583 0.02213 0.00001 0.73260 0.01136 0.01474	0.00893 0.00956 0.05049 0.00145 0.00001 0.00145 0.04899 0.01924 0.00001 0.73872 0.00739 0.01161 0.10213	0.00898 0.00612 0.05421 0.00077 0.00001 0.005148 0.01618 0.00001 0.74355 0.00464 0.00885 0.10395	0.00900 0.00367 0.05686 0.00038 0.00001 0.005337 0.01389 0.00001 0.74727 0.00280 0.00654 0.10561	0.00902 0.00206 0.05860 0.00018 0.00001 0.00035 0.05478 0.01151 0.00001 0.75008 0.00162 0.00467 0.10713	0.00904 0.00108 0.05966 0.00008 0.00000 0.005579 0.00936 0.00001 0.75220 0.00089 0.00321 0.10850	0.00904 0.00053 0.06026 0.00003 0.00000 0.00010 0.05650 0.00744 0.00001 0.75379 0.00046 0.00212 0.10971	0.00905 0.00024 0.06058 0.00001 0.00000 0.00005 0.05698 0.00578 0.00001 0.75500 0.00022 0.00134 0.11074	0.00905 0.00010 0.06074 0.00000 0.00002 0.05729 0.00436 0.00001 0.75593 0.00010 0.00081 0.11159	0.00905 0.00004 0.06081 0.00000 0.00001 0.05749 0.00318 0.00001 0.75664 0.00004 0.00046	0.00905 0.00001 0.06084 0.00000 0.00000 0.05761 0.00223 0.00000 0.75717 0.00001 0.00024 0.11281	0.00905 0.00000 0.06085 0.00000 0.00000 0.005768 0.00150 0.05757 0.00000 0.00000 0.00000 0.11321

ADD H201L1 0 0/F= 25.0000 F/A= 0.04000 PERCENT FUEL: 3.84 1,5000 1,5000 1,5000 1,5000 P, ATM 1.5000 1.5000 P. PSIA 22.0 22.0 1300.0 1880.3 22.0 22.0 22.0 22.0 T, DEG K 1500.0 1410.0 1200.0 1100.0 1000.0 T, DEC F 2240.3 1700.3 1520.3 1340.3 2060.3 RHO, L CC 3.5310-4 3.7832-4 4.0743-4 4.4138-4 4.8150-4 5.2965-4 5. M, MOL WT 28.974 28,974 28,974 28.974 28.974 0.3141 0.3049 0.3003 CP, CAL/IGHKI 0.3095 0.2954 GAMMA (S) 1,2794 1,2847 1,2902 1.2960 1,3024 1.3095 SON VEL, M/SEC 742.1 718.4 693.8 668.0 641,2 613.0 MOLE FRACTIONS 0.00897 0.00897 0.00897 0.00297 0.00897 0.00897 AR 0.08027 C02 0.08027 0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 0.60000 0.00000 H20(L) 0.07624 0.07625 0.07625 0.07625 H20 0.07623 0.00013 0.00006 0.00081 0.00048 0.00027 0.00002 NO. 0.75070 0.75087 0.75098 0.75105 0.75109 N2 0.75111 0.00001 0.00000 0.00000 OH 0.00005 0.00002 0.00000 02 0.08297 0.08314 0.08325 0.08332 0.08336 0.08338 CASE= 0 0/F= 25.0000 F/A= 0.04000 PERCENT FUEL= 3.84 P, ATM 2.0000 2.0000 2,0000 2.0000 2.0000 2.0000 29,4 P. PSIA 29.4 29.4 29.4 29.4 29.4 2800.0 2700.0 2600.0 2500.0 2400.0 2300.0 4580.3 4400.3 4220.3 4040.3 3860.3 3680.3 2.4599-4 2.5699-4 2.6839-4 2.8029-4 2.9282-4 3.0614-4 3. T, DEG K T, DEG F 2,4575-4 = 28,259 11K1 0.7276 RHO, G/CC M, MOL WT 28.468 28.630 28,749 28.833 28.889 CP, CAL/IGHKI 0.6471 0.5723 0.5073 0.4543 0.4138 1.1750 1.1578 976.6 1,2011 1.2151 GAMMA (S) 1,1651 1,1873 SON VEL.M/SEC 958.5 941.9 926.5 911.7 896.8 MOLE FRACTIONS 0.00875 0.00881 0.00886 0.00890 0.00892 0.00894 AR 0.02190 0.01578 0.01068 0.00679 0.00404 CO 0.00226 0.05639 0.06309 0.06864 0.07286 0.07584 0.07778 C02 н 0.00337 0.00197 0.00110 0.00058 0.00029 0.00013 H02 0.00002 0.00002 0.00001 0.00001 0.00001 0.00001 H2 0.00343 0.00244 0.00165 0.00137 0.00066 0.00038 0.06067 0.06464 0.06781 0.07027 0.07212 0.07347 H20 Ο. NO 0.02186 0.01911 0.01650 0.01407 0.01183 0.00979 0.00795 0.00632 0.00491 0.00370 0.00270 0.00190 0.00128

0.00001 0.00001 0.00001

N02

N2

0

1.5000 22.0 900.0 1160.3 .8850-4 28.974 0.2843 1.3179 583.4	28.974 0.2779	1.5000 22.0 700.0 800.3	1.5000 22.0 600.0 620.3 8.8276-4 28.974 0.2644 1.3503 482.2	1.5000 22.0 500.0 440.3 1.0593-3 28.974 0.2580 1.3622 442.1	1.5000 22.0 400.0 260.3 1.3241-3 28.974 0.2523 1.3733 397.0	1.5000 22.0 300.0 80.3 1.8671-3 30.641 0.7428 1.1787 309.8	
0.00897 0.08027 0.00000 0.07625 0.00001 0.75112 0.00000 0.08338	0.00897 0.08027 0.00000 0.07625 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.00005 0.07625 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.00000 0.07625 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.00000 0.07625 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.00000 0.07625 0.00000 0.75112 0.00000 0.08339	0.00897 0.08027 0.05440 0.02185 0.00000 0.75112 0.00000 0.08339	
462 2.0000 29.4 2200.0 3500.3 2045-4 28.925 0.3843 1.2281 881.3	29.4 2100.0 3320.3 3.3596-4 28.946 0.3634 1.2394	2.0000 29.4 2000.0 3140.3 3.5292-4 28.959 0.3487 1.2488 846.8	2.0000 29.4 1900.0 2960.3 3.7158-4 28.966 0.3382 1.2566 827.8	2.0000 29.4 1800.0 2780.3 3.9228-4 28.970 0.3304 1.2631 807.8	2.0000 29.4 1700.0 2600.3 4.1539-4 28.973 0.3242 1.2689 786.8	2.0000 29.4 1600.0 2420.3 4.4137-4 28.974 0.3189 1.2743 764.9	
0.00895 0.00118 0.07895 0.00006 0.00001 0.00021	0.00896 0.00058 0.07962 0.00002 0.00000 0.00011	0.00896 0.00026 0.07997 0.00001 0.00000 0.00005	0.00896 0.00011 0.08014 0.00000 0.00000 0.00002 0.07584	0.00897 0.00004 0.08022 0.00000 0.00000 0.00001 0.07603	0.00897 0.00001 0.08025 0.00000 0.00000 0.00000	0.00897 0.00000 0.08027 0.00000 0.00000 0.00000 0.07620	

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0.72165 0.72843 0.73393 0.73824 0.74153 0.74400 0.74585 0.74722 0.74827 0.74906 0.74966 0.75012 0.75046

0.01041 0.00695 0.00450 0.00281 0.00169 0.00098 0.00053 0.00028 0.00013 0.00006 0.00002 0.00001 0.00000 0.01714 0.01370 0.01065 0.00805 0.00591 0.00420 0.00288 0.03190 0.00120 0.00072 0.00041 0.00022 0.00011

0.07439 0.07505 0.07565 0.07634 0.07715 0.07805 0.07898 0.07987 0.08067 0.08136 0.08193 0.08238

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ADD H201L1
CASE= 0 0/F= 20.0000 F/A= 0.05000 PERCENT FUEL= 4.7619 PHI= 0.7327
P, ATM 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.0000 3.000
GAMMA (S) 1.2745
SON VEL,M/SEC 740.6
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 MOLE FRACTIONS
AR 0.00888 0.00888 0.00988 0.00998

CO2 0.09932 0.09932 0.09932 0.09932

H201L1 0.00000 0.00000 0.00000 0.00000

H20 0.09439 0.09441 0.09444

NO 0.00065 0.00039 0.00021 0.00011
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CASE = 0 0/F = 20.0000 F/A = 0.05000 PERCENT FUEL = 4.7619 PHI = 0.7327
P, ATM 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.0000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.00000 4.000
          CASE= 0 0/F= 20.0000
                                                                                F/A= 0.05000
                                                                                                                     PERCENT FUEL= 4,7619 PHI= 0,7327
                                                                                                                                                                                                                              0.3410
1.2537
 GAMMA (S) 1.1597
SON VEL.M/SEC 976.4
                                                        1.1669
                                                                                1.1766
                                                                                                    1.1886
                                                                                                                     1,2019
                                                                                                                                              1.2153
                                                                                                                                                                 1,2276 1,2381
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 SON VEL, M/SEC
                                                         958.6
                                                                                  942.1
                                                                                                       926.7
                                                                                                                           911.8
                                                                                                                                               896.8
                                                                                                                                                                     881.0
                                                                                                                                                                                          864.1
                                                                                                                                                                                                            846.0
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                                                                                                                                                                                                                                                        806.6
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 MOLE FRACTIONS
 AR
                                                                             0.00879 0.00882 0.00884 0.00886
                                                                                                                                                                                     0.00887 0.00888
                                                                                                                                                                                                                               0.00888 0.00888 0.00888
                                     0.00868 0.00874
                                                                                                                                                               0.00887
                                 0.02418 0.01738
                                                                             0.01176 0.00747 0.00445 0.00249
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 CO
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                               0.07288 0.08034
0.00252 0.00147
                                                                             0.08647 0.09114 0.09442 0.09657 0.09787 0.09860 0.09899
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 H02
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                                   0.00385
                                                         0.00272
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 H2
                                                                                                                                                               0.09280 0.09341 0.09381
 H20
                                   0.07964
                                                                              0.08657 0.08892 0.09066 0.09192
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                                                                                                                                                                                                                                                                        0.09432
                                                         0.08351
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                                                                             0.01331 0.01126
                                                                                                                      0.00942 0.00777
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 NO
                                  0.01804
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 N02
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 N5
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                                 0,01502 0,01184 0,00911 0,00683 0,00498 0,00353 0,00242 0,00159 0,00100
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                                   0.05094 0.05013 0.04953 0.04926
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ADD H20(L)
    CASE=
           0 0/F= 16.6667
                                F/A= 0.06000
                                                PERCENT FUEL= 5.6604 PHI= 0.8792
                                6.0000
                                                          6.0000
                                                                 6.0000
                                                                                                     6.0000
P, ATM
               6.0000 6.0000
                                         6,0000 6,0000
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P. PSIA
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T, DEG K
               1500.0
                      1400.0
                                1300.0
                                         1200.0
                                                  1100.0
                                                          1000.0
                                                                    900.0
                                                                             800.0
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                                                          1340.3
                                                                                     800.3
                                                                                              620.3
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                        2060.3
                                 1880,3
                                         1700.3
                                                  1520.3
                                                                   1160.3
                                                                            980.3
                                                                                                               260.3
                                                                                                                        80.3
T, DEG F
               2240.3
             1.4126-3 1.5135-3 1.6300-3 1.7658-3 1.9263-3 2.1190-3 2.3544-3 2.6487-3 3.0271-3 3.5316-3 4.2379-3 5.2974-3 7.9103-3
RHO, G/CC
                                                          28.979
M, MOL WI
               28.979
                        28,979
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CP, CAL/(G) (K)
               0,3226
                        0.3182
                                 0.3137
                                         0.3089
                                                  0.3038
                                                                   0.2920
                                                                           0.2851
                                                                                    0.2779
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                                                                                                              0.2571
               1,2700
                                 1,2797
                                                  1,2915
                                                                   1.3069
                                                                                                     1.3517
                                                                                                                       1,2205
GAMMA (S)
                        1,2747
                                         1.2853
                                                                            1.3166
                                                                                    1.3276
                                                                                                              1.3637
                                                                    580.9
                                                                                              480.2
                                                                                                               395.6
SON VEL.M/SEC
                739.3
                         715.5
                                 690.9
                                          665.2
                                                   638.4
                                                           610.4
                                                                             549.7
                                                                                     516.4
                                                                                                      440.4
MOLE FRACTIONS
                                                                                                    0.00880
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AR 0.00880 0.00880
                                0.00880 0.00P90
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0.11222 0.11223
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H20
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NO
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N2
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              0.02365
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    CASE= 0 0/F= 16.6667
                                 F/A= 0.06000
                                                PERCENT FUEL= 5.6604
                                                                         PHI= 0.8792
                                                          10,000 10,000
P, ATM
               10.000
                        10.000
                                10.000 10.000
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P, PSIA
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             2800.0
4580.3
                                                                                    2000.0
                                                                                            1900.0
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T, DEG K
                        2700.0
                                 2600.0
                                         2500.0
                                                  2400.0
                                                           2300.0
                                                                   2200.0
                                                                            2100.0
                                                                                                     1800.0
                                4220.3
                                                          3680.3
                                                                                    3140.3
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                                                                                                              2600.3
T. DEG F
                        4400.3
                                         4040.3
                                                  3860.3
                                                                   3500.3
                                                                           3320.3
                                                                                           2960.3
RHO, G/CC
             1.2356-3 1.2889-3 1.3447-3 1.4033-3 1.4655-3 1.5317-3 1.6031-3 1.6805-3 1.7651-3 1.8534-3 1.9618-3 2.0773-3 2.2072-3
         1,2356-3
28,389
                                                  28.860
                        28.555
                                 28.688
                                         28.789
                                                          28.909
                                                                   28,939
                                                                            28,958
                                                                                    28.968
                                                                                             28,974
                                                                                                     28,977
                                                                                                              28.978
M. MOL WT
CP, CAL/IGI(K)
                                                          0.4087
                                                                   0.3825
                                                                                    0.3517
                                                                                             0.3429
             0.6577
                        0.5984
                                 0.5412
                                         0.4889
                                                  0.4442
                                                                            0.3642
                                                                                                     0.3365
                                                                                                              0.3314
             1,1639
                                1.1796
                                         1.1907
                                                  1.2032
                                                           1,2159
                                                                   1,2276
                                                                            1.2374
                                                                                    1.2453
                                                                                             1.2515
                                                                                                     1.2567
                                                                                                              1.2613
                                                                                                                      1,2656
GAMMA ISI
                       1.1706
SON VEL.M/SEC
                         959.3
                                  942.8
                                          927.2
                                                   912.1
                                                           896.9
                                                                    880.9
                                                                             863.8
                                                                                     845.5
                                                                                              826.1
                                                                                                      805.6
                                                                                                               784.4
MOLE FRACTIONS
AR
              0.00862 0.00867 0.00871 0.00874 0.00876 0.00878 0.00879 0.00879 0.00880
                                                                                            0.00880 0.00880
                                                                                                             0.00880 0.00880
CO
              0.02561 0.01861 0.01278 0.00825 0.00498 0.00280 0.00147 0.00072 0.00032
                                                                                            0.00013 0.00005
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Č02
             0.09000 0.09767 0.10405 0.10899 0.11255 0.11492 0.11638 0.11721 0.11765 0.11786 0.11795
                                                                                                             0.11799 0.11801
              0.00165 0.00097 0.00054 0.00029 0.00014
                                                        0.00007
                                                                 0.00003 0.00001 0.00000 0.00000 0.00000
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H
H02
              0.00002 0,00001 0,00001 0.00001 0.00001
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              0.00412
                      0.00295 0.00203 0.00133
                                                0.00082
                                                         0.00048
                                                                 0.00027 0.00014 0.00007
                                                                                            0.00003 0.00001
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H2
H20
              0.09927
                      0.10273 0.10546 0.10755
                                                0.10910
                                                         0.11019
                                                                 0.11094 0.11145
                                                                                  0.11177
                                                                                            0.11197 0.11210
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             0.00418 0.00331 0.00257
0.00001 0.00000 0.00000
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N02
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N2
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                       0.00182
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OH
             0.01145 0.00885
0.02772 0.02584
                                0.00669
                                        0.00494
                                                0.00357 0.00251 0.00171 0.00113 0.00071
                                                                                            0.00043 0.00024
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                                                                                                                      0.00006
                                                 0.02244 0.02214 0.02213 0.02231 0.02258 0.02286
02
                                0.02428
                                        0.02314
                                                                                                    0.02313
                                                                                                            0.02335
                                                                                                                      0.02352
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CASE= 0 0/F= P, ATM 15.000 P, PSIA 220.4 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 3.5317-3 M, MOL WT 28.980 CP, CAL/(G)(K) 0.3260 GAMMA (S) 1.2666 SON VEL,M/SEC 738.3	220.4 220.4 1400.0 1300.0 2060.3 1880.3 3.7841-3 4.0752-3 4. 28.981 28.981 0.3169 1.2713 1.2761	15.000 15.000 220.4 220.4 1200.0 1100.0 1700.3 1520.3	15.000 220.4 1000.0 1340.3	15.000 220.4 900.0 1160.3	PHI= 1,000 15,000 220,4 800.0 980.3 6.6222-3 28,981 0,2880 1,3124 548,8	15.000 220.4 700.0 800.3	15.000 220.4 600.0 620.3 8.8296-3 28.981 0.2731 1.3353 479.4	15.000 220.4 500.0 440.3 1.059.58 1.2658 1.3477 439.7	15.000 220.4 400.0 260.3 1.3244-2 28.981 0.2590 1.3600 395.1	15.000 220.4 300.0 80.3 2.0174-2 33.108 0.3392 1.2336 304.9
MOLE FRACTIONS AR C0 0.00004 C02 0.13312 H2 0.00001 H20 0.12666 N0 0.00001 N2 0.73140 O2 0.00002	0.00001 0.00000 0 0.13314 0.13316 0 0.00001 0.00000 0 0.00000 0.00000 0 0.12667 0.12668 0 0.00000 0.00000 C 0.73142 0.73143 0	.00P73 0.00873 .00600 0.00000 .13316 0.13316 .00000 0.00000 .00000 0.00000 .12668 0.12668 .00000 0.00000 .73143 0.73143 .00000 0.00000	0.00873 0.00000 0.i3316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.00000 0.12668 0.00000 0.73143 0.00000	0.00873 0.00000 0.13316 0.00000 0.12466 0.00202 0.00000 0.73143 0.00000
P, ATM 20.000 P, PSIA 293.9 T, DEG K 2800.0 T, DEG F 4580.3	293.9 293.9 2700.0 2600.0 4400.3 4220.3 2.5727-3 2.6833-3 2. 28.499 28.623 0.5822 0.5373 1.1733 1.1805	20.000 20.000 293.9 293.9 2500.0 2400.0 4040.3 3860.3	20.000 293.9 2300.0 3680.3	20.000 293.9 2200.0 3500.3	PHI= 1,000 20,000 293.9 2100.0 3320.3 33580-3 28,932 0.3816 1,2283 861.0	20.000 293.9 2000.0 3140.3	20.000 293.9 1900.0 29.0.3 3.7157-3 28.965 0.3529 1.2449 824.0	20.000 293.9 1800.0 2780.3 3.9231-3 28.973 0.3435 1.2515 804.0	20.000 293.9 1700.0 2600.3 4.1545-3 28.977 0.3364 1.2572 783.1	20.000 293.9 1600.0 2420.3 4.4145-3 28.979 0.3307 1.2621 761.2
MOLE FRACTIONS AR CO 0.09164 CO2 0.0921 H 0.00131 H02 0.00050 H2 0.00001 N2 0.0002 N0 0.00052 N02 0.00001 N2 0.71122 O 0.00129 OH 0.00827 O2 0.01146	0.02423 0.01832 0 0.10671 0.11319 0 0.00080 0.00047 0 0.00040 0.00001 0 0.00401 0.00030 0 0.11710 0.11965 0 0.00660 0.00497 0 0.00000 0.00000 0 0.71597 0.71992 0 0.00077 0.00043 0 0.00612 0.00439 0		0.00870 0.00641 0.12620 0.00007 0.00114 0.12432 0.00175 0.00000 0.72750 0.00006 0.00131 0.00256	0.00871 0.00416 0.12863 0.00003 0.00007 0.12514 0.00115 0.00000 0.72887 0.00002 0.00080 0.00169	0.00872 0.00258 0.13035 0.00002 0.000051 0.12572 0.00002 0.72984 0.00001 0.00047 0.00047	0.00872 0.00152 0.13151 0.00001 0.00003 0.12610 0.00043 0.00000 0.73049 0.00000 0.00026 0.00026	0.00873 0.00084 0.13224 0.00000 0.000019 0.12635 0.00024 0.00000 0.73090 0.00000 0.00014	0.00873 0.00044 0.13268 0.00000 0.00001 0.12650 0.00013 0.00000 0.73115 0.00000 0.00007 0.000019	0.00873 0.00021 0.13293 0.00000 0.00006 0.12659 0.00006 0.73130 0.00000 0.00003 0.00003	0.00873 0.00009 0.13306 0.00000 0.00000 0.00003 0.12664 0.00003 0.73137 0.00000 0.00001 0.00001

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CASE =
                   0/F= 14,2857
                                    F/A = 0.07000
                                                    PERCENT FUEL= 6.5421
                                                                               PHI= 1.0258
P. ATM
                 30,000
                                    30,000
                                             30,000
                                                      30,000
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P. PSIA
                  440.9
                           440.9
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T, DEG K
                 1500.0
                          1400.0
                                    1300.0
                                             1200.0
                                                      1100.0
                                                                1000.0
                                                                         900.0
                                                                                   800.0
                                                                                            700.0
                                                                                                     600.0
                                                                                                              500.0
                                                                                                                        400.0
                                                                                                                                 300.0
                 2240.3
                          2060.3
                                             1700.3
                                                      1520.3
                                                                                   980.3
T, DEG F
                                    1880.3
                                                               1340.3
                                                                         1160.3
                                                                                            800.3
                                                                                                     620.3
                                                                                                               440.3
                                                                                                                        260.3
                                                                                                                                  80.3
RHO, G/CC
                          .5303-3 8.1096-3 8.7854-3 9.5840-3
               7.0283-3 7
                                                             1.0542-2 1
                                                                        .1714-2 1.3184-2 1.5100-2
                                                                                                  1.7647-2 2.1189-2 2.7961-2 4.0537-2
M, MOL WI
                 28.836
                          28,836
                                   28,836
                                             28,836
                                                      28,836
                                                               28.836
                                                                         28,837
                                                                                  28,848
                                                                                                    28,961
                                                                                                                       30.592
                                                                                           28,911
                                                                                                              28.978
                                                                                                                                33.263
CP, CAL/IGITE
                 0.3261
                          0.3226
                                   0,3188
                                             0.3146
                                                      0,3102
                                                               0.3053
                                                                         0.2999
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                                                                                                    0.2820
                                                                                                             0.2681
                                                                                                                       1.1589
                                                                                                                                0.3193
GAMMA ISI
                 1.2679
                          1,2716
                                    1,2758
                                             1,2804
                                                               1,2916
                                                                         1,2987
                                                      1,2857
                                                                                  1.3010
                                                                                           1.3053
                                                                                                    1.3264
                                                                                                              1.3448
                                                                                                                       1,1892
                                                                                                                                1.2402
SON VEL, M/SEC
                  740.5
                           716.5
                                              665.6
                                                                                   547.7
                                                                                                               439.2
                                    691.5
                                                       638,6
                                                                610.3
                                                                         580.5
                                                                                            512.6
                                                                                                     478.0
                                                                                                                        359.6
                                                                                                                                 305.0
MOLE FRACTIONS
AR
                0.00867
                         0.00867
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                                                                       0.00867
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CISI
                0.00000
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CH4
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ĊO
                0.00727
                         0.00692
                                   0.00647
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C02
                0.12840
0.00278
                         0.12876
                                   0.12921
                                           0.12978
                                                     0.13051
                                                              0.13141
                                                                       0.13248
                                                                                 0.13364
                                                                                          0.13426
                                                                                                   0.13407
                                                                                                            0.13389
                                                                                                                     0.13253
                                                                                                                               0.13065
H2
                         0.00313
                                   0.00359
                                           G.00415
                                                     0.00487
                                                              0.00577
                                                                       0.00681
                                                                                 0.00733
                                                                                          0.00442
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H20 (L1
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                0.12630
                         0.12595
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                                           0.12493
                                                    0.12420
                                                              0.12330
                                                                                 0.12136
                                                                                                   0.12388
H20
                                                                                          0.12237
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                0.00000
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NH3
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                0.72657
                                           0.72657 0.72657
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N2
                         0.72657
                                  0.72657
                                                              0.72657 0.72658
                                                                                          0.72841 0.72969
                                                                                                            0.73014 0.72872
      CASE= 0
                   0/F= 14.2857
                                    F/A= 0.07000
                                                    PERCENT FUEL=
                                                                    6.5421
                                                                               PHI= 1.0258
                                             40.000
P. ATM
                 40,000
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P, PSIA
                  587.8
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                                                                                  2100.0
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T, DEG K
                 2800.0
                          2700.0
                                   2600.0
                                             2500.0
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                                                               2300.0
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                                                                                           2000.0
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                                                                                                                                1600.0
                 4580.3
                          4400.3
                                   4220.3
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                                                                                                                                2420.3
RHO, G/CC
               4.9461-3 5.1511-3 5.3677-3 5.5973-3 5.8418-3 6.1037-3 6.3857-3 6.6921-3 7.0277-3 7.3980-3 7.8091-3 8.2685-3 8.7853-3
M, MOL HT
                 28,410
                          28.531
                                    28,629
                                             28,706
                                                      28.762
                                                               28.799
                                                                         28.820
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                                                                                                                                28,836
CP, CAL/IGIIKI
                 0.5789
                          0.5375
                                   0.4977
                                             0.4603
                                                      0.4252
                                                               0.3936
                                                                         0.3684
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GAMMA (S)
                 1.1753
                          1.1817
                                    1.1896
                                             1,1992
                                                      1,2105
                                                               1,2234
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                                                                                                                       1,2616
                                                                                                              1,2587
                                                                                                                                1,2646
SON VEL, M/SEC
                  981.3
                           964.3
                                     947.8
                                              931.8
                                                       916.4
                                                                901.3
                                                                         885.7
                                                                                   868.6
                                                                                            849.7
                                                                                                     829.4
                                                                                                               808.3
                                                                                                                        786.4
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MOLE FRACTIONS
AR
                0.00855
                         0.00858
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CO
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C02
                         0.11059
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                0.10432
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                                           0.12003
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H2
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H20
                0.11870
                         0,12126
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                0.00670
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NO
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                0.71249
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N2
                         0.71641
                                   0.71962
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ОН
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ADD CIST ADD H20(L)

CASE= 0 077 P, ATM 50.07 P, PSIA 734 T, DEG K 1500 T, DEG F 2240 RHO, G/CC 1.1393 M, MOL NT 28.0 CP, CAL///GJ/K/ 0.33 GAMMA (S) 1.26 SON VEL,M/SEC 751	00 50.000 50.000 .8 734.8 734.8 .0 1400.0 1300.0 .3 2060.3 1880.3 -2 1.2207-2 1.3146-2 46 28.046 28.046 28.045 28.046 38 0.3313 0.3290 35 1.2720 1.2744	734.8 734. 734.8 734. 735. 736.8 734. 736.8 734. 737.8 734.	50.000 734.8 0 1000.0 3 1340.3 2 1.7125-2 2 28.104 9 0.3715 2 1.2586	50.000 734.8 900.0 1160.3	HI= 1,1723 50,000 50,000 734.8 734.8 800.0 700.0 980.3 800.3 2.1863-2 2.5145-2 28.704 28.887 0.3838 0.3203 1,2549 1,2910 539.3 510.0	50.000 50.4 734.8 73- 600.0 500 620.3 44 2.9410-2 3.531: 28.960 28.0 0.2910 0.2: 1.3143 1.3: 475.8 43	1.8 734.8 734.8 1.0 400.0 300.0 1.3 260.3 80.3 1-2 4.9265-2 6.8959-2 180 32.340 33.951 158 0.7620 0.3184 120 1.1921 1.2310
MOLE FRACTIONS AR 0.008 C(S) 0.000 CH4 0.000 C0 0.044 C02 0.104 H2 0.020 H20(L) 0.000 H20 0.121 NH3 0.000 N2 0.700	00 0.00000 0.00000 00 0.00000 0.00000 87 0.04258 0.0401 80 0.10680 0.1092 15 0.02214 0.02459 00 0.00000 0.00000 99 0.12000 0.1175 01 0.00001 0.00000	0 0.00000 0.0000 0 0.00001 0.0000 0 0.03704 0.0331 7 0.11234 0.1162 8 C.02761 0.0312 0 0.00000 0.0000 4 0.11448 0.1106 2 0.00004 0.0000	0.00000 8 0.00096 0 0.02691 3 0.12182 0.03388 0 0.00000 9 0.10641 7 0.00015	0.00846 0.00000 0.00574 0.01479 0.13059 0.02738 0.00000 0.10460 0.00023 0.70820	0.00855 0.00861 0.00000 0.00000 0.01162 0.01490 0.00450 0.0059 0.13676 0.13816 0.01493 0.00598 0.00000 0.00000 0.10697 0.11034 0.00023 0.00019 0.71643 0.72192	0.00859 0.003 0.00474 0.013 0.01378 0.003 0.00007 0.000 0.13492 0.123 0.00166 0.003 0.00000 0.003 0.11668 0.123 0.00012 0.003 0.71944 0.713	0.03138 0.03236 086 0.00051 0.00000 000 0.00000 0.00000 036 0.11764 0.11701 027 0.00001 0.0000 000 0.10053 0.14159 088 0.04074 0.00057 006 0.00000 0.00000
P, ATM 0.50 P, PSIA 7 T, DEG k 2800 T, DEG F 4580	00 0.5000 0.5000 .3 7.3 7.3 .0 2700.0 2600.0 .3 4400.3 4220.3 -5 6.0082-5 6.3023-5 .5 6.0082-5 6.3023-5 .6 623 26.89 .9 0.9263 0.7566 .1 11449 1.1568	7.3 7. 2500.0 2400. 3 4040.3 3860. 5 6.5985-5 6.9013- 27.073 27.18 8 0.6085 0.499 3 1.1754 1.198	0.5000 3 7.3 0 2300.0 3 3680.3 5 7.2176-5 2 27.244 4 0.4314 5 1.2205	0.5000 7.3 2200.0 3500.3	HI= 1.3189 0.5000 0.5000 7.3 7.3 2100.0 2000.0 3320.3 3140.3 7.9196-5 8.3183-5 27.294 27.303 0.3715 0.3596 1.2490 1.2564 893.9 874.8	1900.0 1800 2960.3 2780	7.3 1.0 1700.0 1600.0 1.3 2600.3 2420.3 1.5 9.7889-5 1.0401-4 110 27.310 27.311 182 0.3450 0.3426 1.2675 1.2698
MOLE FRACTIONS AR C0 0.108 C02 0.047 H 0.020 H2 0.032 H20 0.096 N0 0.007 N2 0.646 0 0.007 OH 0.017 O2 0.008	53 0.10235 0.0969; 59 0.01378 0.0090 34 0.02975 0.0278; 59 0.01727 0.1151; 50 0.00493 0.00318; 50 0.00378 0.6636; 50 0.00378 0.0018; 50 0.00378 0.0018; 50 0.00378 0.0018;	2 0.09289 0.0902 0.06731 0.0710 0.00580 0.0036 8 0.02693 0.0268 0.12038 0.1203 0.00182 0.0009 0.66871 0.6718 0.00077 0.0002 0.000550 0.0031	8 0,08864 6 0,07307 6 0,00225 1 0,02726 5 0,12469 5 0,00045 7 0,67363 8 0,00009 7 0,00169	0.00805 0.08745 0.07445 0.00133 0.02805 0.12498 0.00019 0.67458 0.00003 0.00084	0.00806 0.00806 0.08639 0.08526 0.07562 0.007681 0.00075 0.00040 0.02904 0.03020 0.12460 0.12378 0.00008 0.00003 0.67506 0.67531 0.00001 0.00000 0.00039 0.00017 0.00001 0.00000	0.00806 0.000 0.08397 0.083 0.07812 0.075 0.00020 0.000 0.03152 0.03 0.12263 0.12 0.00001 0.000 0.67543 0.677 0.00000 0.000 0.00006 0.000 0.00006 0.000	247 0.08071 0.07861 163 0.08140 0.08350 1009 0.00004 0.00001 1005 0.03484 0.03695 118 0.11943 0.11734 100 0.00000 0.00000 148 0.67551 0.67552 100 0.00000 0.00000 100 0.00000 0.00000

ADD CIST ADD H20(L)

CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/IGHKI GAMMA (S) SON VEL,M/SEC	1.0000 14.7 1500.0 2240.3	10.0000 1.0000 14.7 1400.0 2060.3 2.3178-4 26.626 0.3444 1.2767 747.1	F/A= 0 1.0000 14.7 1300.0 1880.4 26.626 0.3432 1.2779 720.2	1.0000 14.7 1200.0 1700.3	PERCENT F 1.0000 14.7 1100.0 1520.3 2.9499-4 26.627 0.3426 1.2785 662.7	1.0000 14.7 1000.0 1340.3	1.0000 14.7 900.0 1160.3	HI= 1.465 1.0000 14.7 800.0 980.3 4.1568-4 27.288 0.9153 1.1568 531.0	1.0000 14.7 700.0 800.3	1.0000 14.7 600.0 620.3 5.8468-4 28.786 0.3695 1.2613 467.5	1.0000 14.7 500.0 440.3 7.0570-4 28.954 0.2999 1.3058 433.0	1.0000 14.7 400.0 260.3 8.8311-4 28.986 0.2763 1.3309 390.8	1,0000 14,7 300,0 80,3 1,3866-3 34,134 0,9685 1,1433 289,1
MOLE FRACTIONS AR C (5) CH4 CO CD2 H2 H20(L) H20 NH3 N2	0.00779 0.00000 0.00000 0.10313 0.07085 0.05982 0.00000 0.10581 0.00000 0.65260	0.00779 0.00000 0.00000 0.09959 0.07439 0.06336 0.00000 0.10226 0.00000 0.65260	0.00779 0.00000 0.00000 0.09531 0.07868 0.06764 0.00000 0.09758 0.00000 0.65260	0.00779 0.60000 0.00000 0.09009 0.08390 C.07286 0.00000 0.00000 0.65260	0.00779 0.00000 0.00000 0.08367 0.09032 0.07927 0.00000 0.08634 0.00001 0.65260	0.00779 0.60000 0.00002 0.07571 0.09826 0.08714 0.00000 0.07843 0.00001 0.65263	0.00780 0.00000 0.00065 0.06502 0.10854 0.09551 0.00000 0.06900 0.065345	0.00794 0.00609 0.00927 0.03531 0.12655 0.08133 0.00000 0.66875 0.00006 0.66470	0.00803 0.03074 0.01507 0.00549 0.12794 0.04052 0.00000 0.09987 0.09007 0.67228	0.00806 0.04270 0.01745 0.00044 0.11948 0.01295 0.00000 0.12350 0.00005 0.67538	0.00802 0.05394 0.01436 0.00001 0.11067 0.00226 0.00000 0.13937 0.00003 0.67135	0.00792 0.06648 0.00812 0.00000 0.10221 0.00016 0.00000 0.15191 0.00001 0.66319	0.00779 0.08136 0.00006 0.00000 0.09258 0.00000 0.13848 0.02704 0.02704 0.00000 0.65268
CASE= 0 P. ATM P. PSIA T. DEG K T. DEG F RHO, G/CC M, MOL WT CP. CAL/IGIIKI GAMMA (S) SON VEL,M/SEC	0 /F= 1.5000 22.0 2800.0 4580.3 1.7078-4 26.158 0.7486 1.1648 1018.1	10.0000 1.5000 22.0 2700.0 4400.3 1.7827-4 26.331 0.6244 1.1797 1002.9	F/A= 0 1.5000 22.0 2600.0 4220.3 1.8594-4 26.447 0.5293 1.1976 989.4	1.5000 1.5000 22.0 2500.0 4040.3 1.9391-4 26.520 0.4636 1.2155 976.1	PERCENT F 1.5000 22.0 2400.0 3860.3 2.0233-4 26.565 0.4210 1.2311 961.7	FUEL = 9 1.5000 22.0 2300.0 3680.3 2.1135-4 26.592 0.3941 1.2433 945.6	.0909 P 1.5000 22.0 2200.0 3500.3 2.2108-4 26.607 0.3774 1.2523 927.9	HI= 1.465 1.5000 22.0 2100.0 3320.3 2.3169-4 26.616 0.3668 1.2587 908.7	1.5000 22.0 2000.0 3140.3 2.4332-4 26.621 0.3600 1.2632 888.3	1.5000 22.0 1900.0 2960.3 2.5615-4 26.624 0.3555 1.2666 866.9	1.5000 22.0 1800.0 2780.3 2.7040-4 26.625 0.3523 1.2692 844.6	1.5000 22.0 1700.0 2600.3 2.8631-4 26.626 0.3498 1.2714 821.5	1.5000 22.0 1600.0 2420.3 3.0420-4 26.626 0.3477 1.2733 797.6
MOLE FRACTIONS AR CO CO2 H H2 H20 N0 N0 OH	0.00765 0.12490 0.04603 0.01373 0.04277 0.10808 0.00340 0.63942 0.00199 0.00999 0.00203	0.00770 0.12251 0.04954 0.00949 6.04231 0.11341 0.00210 0.64431 0.00094 0.00666 0.00102	0.00774 0.12078 0.05202 0.00642 0.04246 0.11675 0.00120 0.64759 0.00040 0.00418 0.00045	0.00776 0.11953 0.05376 0.00423 0.04305 0.11856 0.00064 0.64966 0.00016 0.00247	0.00777 0.11850 0.05508 0.00271 0.04391 0.11929 0.00032 0.65093 0.00006 0.00138	0.00778 0.11754 0.05622 0.00167 0.04494 0.11927 0.00015 0.65167 0.00002 0.00073	0.00779 0.11651 0.05735 0.00098 0.04609 0.11874 0.00006 0.65210 0.00001	0.00779 0.11536 0.05856 0.00055 0.04737 0.11784 0.00003 0.65234 0.00000 0.00017	0.00779 0.11403 0.05992 0.00029 0.04879 0.11663 0.00001 0.65247 0.00000 0.00007	0.00779 0.11249 0.06148 0.00014 0.05039 0.11514 0.00000 0.65254 0.00000 0.00003 0.00000	0.00779 0.11069 0.06328 0.00007 0.05223 0.11336 0.00000 0.65257 0.00000 0.00001 0.00001	0.00779 0.10858 0.06540 0.00003 0.05436 0.11125 0.00000 0.65259 0.00000 0.00000	0.00779 0.10609 0.06789 0.00001 0.05686 0.10876 0.00000 0.65259 0.00000 0.00000

CASE= 0 0/F= P, ATM 40.000 P, PSIA 587.8 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 5.0335-3 M, MOL WT 28.912 CP, CAL/(G)(K) 0.3724 GAMMA (S) 1.2363 SON VEL,M/SEC 997.7	40.000 40.000 40.000 587.8 587.8 587.8 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3	40.000 40.000 40.000 587.8 587.8 587.8 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3	PHI = 0.0000 40.000	587.8 587.8 587.8 587.8 1800.0 1700.0 1600.0 3 2780.3 2600.2 2420.3 7.8442-3 8.3056-3 8.8247-3 6 28.965 28.
MOLE FRACTIONS AR 0.00931 C0 0.00002 C02 0.00028 NO 0.03581 ND2 0.00013 N2 0.76152 0 0.00371 O2 0.18923	0.00931 0.00932 0.00932 0.00001 0.00001 0.00000 0.00029 0.00029 0.00030 0.003133 0.02707 0.02308 0.00013 0.00012 0.00011 0.76424 0.76671 0.76894 0.00249 0.00162 0.00101 0.19221 0.19487 6.19723	0.00932 0.00932 0.00932 0.00000 0.00000 0.00000 0.00030 0.00030 0.00030 0.01938 0.1601 0.01298 0.00011 0.00010 0.00010 0.77095 0.77274 0.77431 0.00061 0.00035 0.00019 0.19933 0.20118 0.20279	0.00932 0.00932 0.0093 0.00000 0.00000 0.0000 0.00030 0.00030 0.0003 0.01030 0.00798 0.0060 0.00009 0.00008 0.0000 0.77569 0.77687 0.7778 0.00010 0.00005 0.0000 0.20420 0.20539 0.2064	0 0.0000 0.00000 0.00000 0.00030 0.00030 0.00030 0.00438 0.00308 0.00207 7 0.00007 0.00006 0.00005 2 0.77869 0.77934 0.77985 2 0.00001 0.00000 0.00000
CASE= 0 0/F= P, ATM 40.000 P, PSIA 587.8 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 9.4130-3 M, MOL WT 28.965 CP, CAL/(G)(K) 0.2939 GAMMA (S) 1.3044 SON VEL,M/SEC 749.4	0.0000 F/A= 0.00000 40.000 40.000 40.000 587.8 587.8 587.8 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 1.0085-2 1.0861-2 1.1766-2 28.965 28.965 28.965 0.2898 0.2856 0.2815 1.3102 1.3161 1.3222 725.6 700.8 674.9	40.000 40.000 40.000 587.8 587.8 587.8 1100.0 1000.0 900.0 1520.3 1340.3 1160.3	PHI= 0.0000 40.000 40.000 40.000 587.8 587.8 587.8 800.0 700.0 600.0 980.3 800.3 620.1 1.7649-2 2.0170-2 2.3532-2 28.964 28.964 28.96 0.2626 0.2569 0.251 1.3536 1.3644 1.375 557.5 523.6 486.0	8 587.8 587.8 587.8 587.8 500.0 400.0 300.0 8 440.3 260.3 80.3 2 2.8238-2 3.5298-2 4.7064-2 4 28.964
MOLE FRACTIONS AR 0.00932 C02 0.00030 ND 0.00131 NO2 0.00004 N2 0.78023 O2 0.20879	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00078 0.00043 0.00021 0.00004 0.00003 0.00002 0.78050 0.78067 0.78078 0.20906 0.20925 0.20936	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00009 0.00004 0.00001 0.00002 0.00001 0.00001 0.78084 0.78087 0.78088 0.20942 0.20946 0.20947	0.00932 0.00932 0.0093 0.00030 0.00030 0.0003 0.00000 0.00000 0.0000 0.00000 0.00000 0.0000 0.78089 0.78089 0.7808 0.20948 0.20948 0.2094	0 0.00030 0.00030 0.00030 0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000 0 0.78089 0.78089

CASE= 0 0/F=100.0000 P, ATM 50.000 50.000 P, PSIA 734.8 734.8 T, DEG K 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 1.1767-2 1.2608-2 M, MOL HT 28.967 28.967 CP, CAL/IGIIK) 0.2992 0.2949 GAMMA ISI 1.2975 1.3031 SON VEL,M/SEC 747.4 723.6	734.8 734.8 734.8 734.8 1300.0 1200.0 1100.0 1880.3 1700.3 1520.3 1.3578-2 1.4709-2 1.6046-2 28.967 28.967 28.967 0.2906 0.2863 0.2820 1.3089 1.3150 1.3215	50.000 50.000 50.000 734.8 734.8 734.8 1000.0 900.0 800.0 1340.3 1160.3 980.3 1,7651-2 1.9612-2 2.2063-2 28.967 28.967 28.967 0.2774 0.2723 0.2666 1.3285 1.3358 1.3465	50.000 50.000 734.8 734.8 700.0 600.0 800.3 620.3	50.000 50.000 50.000 734.8 734.8 734.8 500.0 400.0 300.0 440.3 260.3 80.3 3.5301-2 4.4126-2 5.9971-2 28.967 28.967 29.526 0.2492 0.2448 0.2632 1.3799 1.3893 1.3537 445.0 399.4 338.2
MOLE FRACTIONS AR CO2 0.02088 0.02088 H20(L1 0.00000 0.00000 H20 0.01962 0.01962 NO 0.00120 0.00002 NO2 0.00004 0.00003 N2 0.77262 0.77287 OH 0.00001 0.00001 O2 0.17639 0.17664	0.02088 0.02068 0.02088 0.00000 0.00000 0.00000 0.01962 0.01962 0.01962 0.00039 0.00020 0.00009 0.00003 0.00002 0.00002 0.77303 0.77313 0.77318 0.00000 0.00000 0.00000	0.02088 0.02088 0.02088 0.00000 0.00000 0.00000 0.01962 0.01962 0.01962 0.00003 0.00001 0.00000 0.00001 0.00001 0.00000 0.77321 0.77322 0.77323 0.00000 0.00000 0.00000	0.00923 0.00923 0.02088 0.02088 0.00000 0.00000 0.01962 0.01962 0.00000 0.00000 0.77323 0.77323 0.00000 0.00000 0.17703 0.17703	0.00923 0.00923 0.00923 0.02088 0.02088 0.02088 0.00000 0.00000 0.01894 0.01962 0.01962 0.00068 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.77323 0.77323 0.77323 0.00000 0.00000 0.00000 0.17703 0.17703 0.17703
CASE= 0 0 0/F= 50.0000 P, ATM 0.5000 0.5000 P, PSIA 7.3 T, DEG K 2800.0 2700.0 T, DEG F 4580.3 4400.3 RHO, G/CC 6.1142-5 6.3980-5 M, MOL WI 28.096 28.350 CP, CAL/IGIIKI 0.7944 0.6974 GAMMA (5) 1.1545 1.1614 SON VEL, H/SEC 978.1 959.0	7.3 7.3 7.2 7.2 2400.0 2500.0 2400.0 2500.0 3860.3 8660.3 6.6903-5 6.9934-5 7.3107-5 28.547 28.693 28.795 0.6085 0.5317 0.4694 1.1713 1.1839 1.1986	0.5000 0.5000 0.5000 7.3 7.3 7.3 2300.0 2200.0 2100.0 3680.3 3500.3 3320.3 7.6468-5 8.0065-5 8.3956-5 28.864 28.908 28.935 0.4215 0.3864 0.3614	0.5000 0.5000 7.3 7.3 2000.0 1900.0 3140.3 29.0.3	0.5000 0.5000 0.5000 7.3 7.3 7.3 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 9.8051-5 1.0383-4 1.1032-4 28.965 28.967 28.968 0.3225 0.3155 0.3097 1.2717 1.2786 1.2848 810.6 789.9 768.1
MOLE FRACTIONS AR CO 0.00887 0.00895 CO 0.01514 0.01124 CO2 0.02459 0.02894 HO2 0.00001 0.00001 H2 0.00217 0.00162 H20 0.02423 6.02762 NO 0.022782 0.02475 NO2 0.00001 0.00001 N2 0.72870 0.73637 OH 0.02638 0.01731 OH 0.01224 0.01437	0.00780 0.00505 0.00305 0.03266 0.00562 0.0377 0.00182 0.00097 0.00045 0.00001 0.00031 0.00001 0.00114 0.00076 0.00046 0.03048 0.03279 0.03458 0.02164 0.01862 0.01572 0.00001 0.00001 0.00001 0.74373 0.74309 0.7532 0.01173 0.00739 0.00445 0.01153 0.00892 0.00665	0.00172 0.00091 0.00044 0.03919 0.04007 0.04057 0.00023 0.00010 0.00000 0.00001 0.00000 0.00000 0.00028 0.00016 0.00008 0.03593 0.03692 0.03762 0.01306 0.01062 0.00845 0.00001 0.00001 0.00001 0.75638 0.75876 0.76056 0.00258 0.00142 0.00073 0.00478 0.00330 0.00219	0.00914 0.00914 0.00020 0.00008 0.04084 0.04097 0.00001 0.00000 0.00000 0.00000 0.00004 0.00000 0.03810 0.03842 0.00656 0.00495 0.00001 0.00001 0.76193 0.76298 0.00035 0.00016 0.00139 0.00083	0.00914 0.00914 0.00914 0.00003 0.00001 0.00000 0.04103 0.04105 0.04106 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.03662 0.03874 0.03880 0.00361 0.00254 0.00170 0.00000 0.00000 0.00000 0.76378 0.76438 0.76484 0.00006 0.00002 0.00001
02 0.11939 0.12440	0.12844 0.13173 0.13445	0,13671 0,13860 0,14016	0.14143 0.14245	0.14325 0.14386 0.14432

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CASE =
                       0/F= 33.3333
                                                   F/A = 0.03000
                                                                          PERCENT FUEL= 2.9126
                                                                                                                PHI= 0.4396
P, ATM 1.0000
                                                                1,0000
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P, PSIA
                        14.7
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                   1500.0 1400.0 1300.0 1200.0 1100.0 1000.0 900.0 800.0 700.0 600.0 500.0 400.0 300.0 2240.3 2060.3 1880.3 1700.3 1520.3 1340.3 1160.3 980.3 800.3 620.3 440.3 260.3 80.3 2.3538-4 2.5219-4 2.7159-4 2.9423-4 3.2098-4 3.5307-4 3.9230-4 4.4134-4 5.0439-4 5.8845-4 7.0615-4 8.8268-4 1.2057-3
T, DEG K
T, DEG F
M, MOL WT
                        28.972
                                     28.972
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CP, CAL/IGIIKI
                      0.3095
                                     0.3049
                                                   0.3003
                                                                0.2957
                                                                             0.2910
                                                                                           0.2860
                                                                                                       0.2804
                                                                                                                     0.2742
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                                                                                                                                               0,2612
                                                                                                                                                            0.2551
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                     1.2849
                                                                                                        1,3238
GAMMA (S)
                                     1,2904
                                                   1,2960
                                                                1,3020
                                                                             1.3084
                                                                                           1.3154
                                                                                                                     1.3336
                                                                                                                                  1.3445
                                                                                                                                               1,3561
                                                                                                                                                            1,3678
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                                                                                                                                                                                       1.1661
SON VEL, M/SEC
                      743 7
                                       720.0
                                                    695.4
                                                                  669.6
                                                                               642.7
                                                                                            614.4
                                                                                                         584.7
                                                                                                                       553.3
                                                                                                                                    519.7
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                                                                                                                                                              443.0
                                                                                                                                                                            397.8
                                                                                                                                                                                        313.0
MOLE FRACTIONS
AR
                     0.00905
                                    0.00905
                                                 0.00905
                                                              0.00905 0.00905 0.00905
                                                                                                      0.00905 0.00905
                                                                                                                                0.00905
                                                                                                                                            0.00905
                                                                                                                                                           0.00905
                                                                                                                                                                        0.00905
                                                                                                                                                                                     0.00905
C02
                 0.06086
0.00000
0.05771
0.00095
0.75786
                     0.06086
                                    0.06086
                                                 0.06086
                                                              0.06086
                                                                            0.06086
                                                                                         0.06086
                                                                                                      0.06086
                                                                                                                   0.06086
                                                                                                                                 0.06086
                                                                                                                                              0.06086
                                                                                                                                                           0.06086
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                                                                                                                                                                                     0.06086
H20(L)
                                   0.00000
                                                 0.00000
                                                              0.00000
                                                                           0.00000
                                                                                        0.00000
                                                                                                      0.00000
                                                                                                                   0.00000
                                                                                                                                0.00000
                                                                                                                                            0.00000
                                                                                                                                                           0.00000
                                                                                                                                                                        0.00000
                                                                                                                                                                                     0.02391
H20
                                    0.05773
                                                 0.05774
                                                              0.05774 0.05774 0.05774 0.05774
                                                                                                                   0.05774
                                                                                                                                0.05774 0.05774
                                                                                                                                                           0.05774
                                                                                                                                                                        0.05774
                                                                                                                                                                                     0.03383
                                                                                                                                                           0,00000
NO.
                                   0.00057
                                                 0.00031
                                                              0.00016
                                                                           0.00007
                                                                                        0.00003
                                                                                                      0.00001
                                                                                                                   0.00000
                                                                                                                                0.00000
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N2
                                   0.75806
                                                0.75819
                                                              0.75827
                                                                            0.75831
                                                                                         0.75833
                                                                                                      0.75834
                                                                                                                   0.75835
                                                                                                                                0,75835
                                                                                                                                              0.75835
                                                                                                                                                           0.75835
                                                                                                                                                                       0.75835
                                                                                                                                                                                     0.75835
                     0.00005
                                                                                        0.00000
OH
                                   0.00002
                                                0.00001
                                                              G.00000
                                                                           0.00000
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                                                                                                                                              0.00000
                                                                                                                                                           0.00000
                                                                                                                                                                       0.00000
                                                                                                                                                                                     0.00000
02
                                    0.11371
                                                0.11384
                                                              0.11392 0.11397 0.11399
                                                                                                      0.11400
                                                                                                                  0.11400
                                                                                                                                0.11400
                                                                                                                                              0.11400
                                                                                                                                                           0.11400
                                                                                                                                                                        0.11400
                                                                                                                                                                                     0.11400
       CASE= 0 0/F= 33.3333
                                                                          PERCENT FUEL= 2,9126 PHI= 0,4396
                                                   F/A= 0.03000
P, ATM
                       1.5000
                                     1.5000
                                                  1,5000 1,5000 1,5000
                                                                                        1,5000 1,5000 1,5000 1,5000
                                                                                                                                               1.5000
                                                                                                                                                           1.5000
                                                                                                                                                                         1.5000
P, PSIA
                        22.0
                                        22.0
                                                   22.0
                                                                22.0
                                                                             22,0
                                                                                             22.0
                                                                                                       22.0
                                                                                                                    22.0
                                                                                                                                  22,0
                                                                                                                                               22.0
                                                                                                                                                            22.0
                                                                                                                                                                          22.0
                                                                                                                                                                                       22.0
T, DEG K
                                                                                                                    2100.0
                                                                                                                                  2000.0
                                                                                                                                               1900.0
                                                                                                                                                                                       1600.0
                        2800.0
                                      2700.0
                                                   2600.0
                                                                2500.0
                                                                              2400.0
                                                                                           2300.0
                                                                                                        2200.0
                                                                                                                                                            1800.0
                                                                                                                                                                          1700.0
T, DEG K 2800.0 2700.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 2000.0 
                      0.7033
                                                                                          0.4054
                                                                                                                                                                                       0.3143
CP, CAL/IGI(K)
                                     0.6244
                                                   0.5529
                                                                0.4919
                                                                             0.4428
                                                                                                       0.3779
                                                                                                                     0.3581
                                                                                                                                  0.3440
                                                                                                                                               0.3337
                                                                                                                                                            0.3259
                                                                                                                                                                          0.3196
                                                                                                      1,2322
                                                                                                                                  1,2529
GAMMA (S)
                      1.1612
                                     1.1690
                                                   1.1794
                                                                1,1919
                                                                             1.2057
                                                                                           1.2194
                                                                                                                    1.2434
                                                                                                                                                1.2609
                                                                                                                                                            1.2677
                                                                                                                                                                          1,2738
                                                                                                                                                                                       1.2794
SON VEL, M/SEC
                         977.3
                                       959.6
                                                    943.4
                                                                  928.1
                                                                               913.4
                                                                                            898.4
                                                                                                         882.8
                                                                                                                      866.1
                                                                                                                                    848.2
                                                                                                                                                 829.3
                                                                                                                                                              809.3
                                                                                                                                                                            788.3
                                                                                                                                                                                        766.5
MOLE FRACTIONS
                       0.00884
                                                              0.00899
                                                                            0.00901 0.00903 0.00904 0.00905
                                                                                                                                0.00905
                                                                                                                                              0.00905 0.00905
                                                                                                                                                                         0.00905
AR
                                    0.00891
                                                0.00895
CO
                     0.01670
                                    0.01196
                                                0.00805
                                                              0.00509 0.00303 0.00169 0.00088 0.00043
                                                                                                                                0.00019
                                                                                                                                              0.00008 0.00003
                                                                                                                                                                        0.00001
                                                                                                                                                                                     0.00000
                                                              0.05532 0.05755 0.05900 0.05987 0.06037
                                                                                                                                0.06063 0.06076 0.06082 0.06084 0.06085
C02
                     0.04275
                                   0.04790 0.05213
                                                             0,00057 0,00028 0,00013 0,00006 0,00002 0,00001 0,00000 0,00000 0,00000 0,00000
                     0.00332
                                   0.00195 0.00108
H
H02
                     0.00002
                                   0.00002 0.00001
                                                              0.00001 0.00001 0.00001 0.00001 0.00000
                                                                                                                                0.00000 0.00000
                                                                                                                                                         0.00000 0.00000 0.00000
                     0.00250
H2
                                   0.00178 0.00121
                                                              0.00078 0.00048 0.00028 0.00016 0.00008 0.00004 0.00002
                                                                                                                                                         0.00001 0.00000 0.00000
                0.04385
                                                              0.05221 0.05388 0.05511 0.05600 0.05663 0.05706 0.05734 0.05752 0.05762
H20
                                   0.04727 0.05004
NO
               0.02521 0.02219 0.01927
0.00001 0.00001 0.00001
                                                              0.01650 0.01390
                                                                                        0.01152 0.00936 0.00745
                                                                                                                               0.00578 0.00436
                                                                                                                                                         0.00318 0.00223 0.00150
NO2
                                                              0.00001 0.00001
                                                                                         0.00001 0.00001 0.00001
                                                                                                                                0.00001
                                                                                                                                              0.00001 0.00001 0.00001
                                                                                                                                                                                     0.00001
N2
                     0.72816
                                   0.73485
                                                0.74028
                                                              0.74458 0.74791
                                                                                         0.75046 0.75241
                                                                                                                   0.75391
                                                                                                                                0.75507
                                                                                                                                              0.75596
                                                                                                                                                         0.75665 0.75718
                                                                                                                                                                                    0.75757
                     0.01380
                                   0.00929 0.00604
                                                             0.00379 0.00229
                                                                                         0.00132 0.00072
                                                                                                                  0.00037
                                                                                                                                0.00018 0.00008
                                                                                                                                                         0.00003 0.00001
0
                     0.01678 0.01354 0.01060 0.00806 0.00594
                                                                                         0.00423 0.00291 0.00192
                                                                                                                               0.00121 0.00073 0.00041 0.00022
OH
                                                                                                                                                                                     0.00011
                     0.09806
                                   0.10035 0.10231
                                                              0.10408 0.10571
                                                                                         0.10721 0.10857
                                                                                                                   0.10976
                                                                                                                                0.11077 0.11161
                                                                                                                                                           0.11229 0.11282
```

CASE= 0 0/F= 25 P, ATM 2.0000 P, PSIA 29.4 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 4.7080-4 5. M, MOL WT 28.974 CP, CAL//GI/K) 0.3141 GAMMA ISI 1.2795 SON VEL,M/SEC 742.1	5,0000 F/A= 0.04000 2,0000 2,0000 2,0000 29,4 29,4 29,4 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 .0443-4 5,4323-4 5,8850-4 28,974 28,974 28,974 0.3095 0.3049 0.3003 1.2847 1,2902 1,2960 718,4 693.8 668.1	PERCENT FUEL= 3.8462 2.0000 2.0000 2.0000 29.4 29.4 29.4 1100.0 1000.0 900.1 1520.3 1340.3 1160.6 6.4200-4 7.0621-4 7.8467 28.974 28.974 28.974 0.2954 0.2902 0.284 1.3024 1.3095 1.316 6.41.2 613.0 583.4	1 29.4 29.4 800.0 700.0 6 3 980.3 800.3 6 4 8.8276-4 1.0089-3 1.17 4 28.974 28.974 26 0.2779 0.2712 0.0 6 1.3276 1.3386 1.0	0000 2.0000 2.0000 2.0000 29,4 29,4 29,4 29,4 29,0 300.0 500.0 400.0 300.0 20.3 440.3 260.3 80.3 70-3 1.4124-3 1.7655-3 2.5042-3 3,974 28.974 28.974 30.823 2644 0.2580 0.2523 0.6215 3503 1.3622 1.3733 1.1913 182.2 442.1 397.0 310.5
CO2 0.08027 (H2D(L) 0.00000 (H2D 0.07623 (NO 0.00081 (N2 0.75070 (OH 0.00005 (0.00897 0.00897 0.00P97 0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 0.07624 0.07625 0.07625 0.00048 0.00027 0.00013 0.75087 0.75098 0.75105 0.00002 0.00001 0.00000 0.08314 0.08325 0.08332	0.00897 0.00897 0.0089 0.08027 0.08027 0.0802 0.00000 0.00000 0.0000 0.07625 0.07625 0.07625 0.00006 0.00002 0.0000 0.75109 0.75111 0.75112 0.00000 0.00000 0.00000 0.08336 0.08338 0.08338	7 0.08027 0.08027 0.0 0 0.00000 0.00000 0.0 5 0.07625 0.07625 0.0 1 0.00000 0.00000 0.0 2 0.75112 0.75112 0.7 0 0.00000 0.00000 0.0	0.00897 0.00897 0.00897 0.08027 0.08027 0.08027 0.0000 0.00000 0.00000 0.05996 17625 0.07625 0.07625 0.01629 10000 0.00000 0.00000 0.00000 0.0000 0.00000 0.00000 0.05112 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000
CASE= 0 0/F= 25 P, ATM 3.0000 P, PSIA 44.1 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 3.7039-4 3 M, MOL HT 28.367 CP, CAL//G/IK) 0.6764 GAMMA (S) 1.1630 SON VEL,M/SEC 977.0	5.0000 F/A= 0.04000 3.0000 3.0000 3.0000 44.1 44.1 44.1 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3 8653-4 4.0334-4 4.2095-4 28.546 28.684 28.785 0.6044 0.5386 0.4823 1.1710 1.1813 1.1935 959.6 943.5 928.4	PERCENT FUEL= 3,8462 3,0000 3,44,1 444,1 444,1 2400,0 2300,0 2200,0 3860,3 3680,3 3500,4 3956-4 4,5942-4 4,8080-2 28,855 28,502 28,93; 0,4370 0,4025 0,377; 1,2067 1,2197 1,2311 913.5 898.3 882.	1 44.1 44.1 0 2100.0 2000.0 19 0 3 3320.3 3140.3 29 1 5.0401-4 5.2941-4 5.57 2 28.950 28.961 26 0 0.3593 0.3464 0.5 5 1.2417 1.2503 1	.0000 3.0000 3.0000 3.0000 44.1 44.1 44.1 44.1 200.0 1800.0 1700.0 1600.0 160.3 2780.3 2600.3 2420.3 10-4 5.8843-4 6.2309-4 6.6205-4 3.968 28.971 28.973 28.974 3.3370 0.3298 0.3239 0.3188 2574 1.2636 1.2692 1.2744 282.1 807.9 786.9 764.9
CO 0 0.01895 (CO 0.05964 (CO 0	0.00883 0.00888 0.00891 0.01343 0.00897 0.00564 0.06565 0.07050 0.07411 0.00147 0.00082 0.000043 0.00002 0.00002 0.00001 0.00204 0.00137 0.00038 0.06609 0.06885 0.07100 0.01910 0.06885 0.07100 0.01910 0.01649 0.01406 0.00001 0.00001 0.00001 0.73046 0.73533 0.73916 0.01251 0.00969 0.00731 0.01251 0.00969 0.00731 0.017472 0.07540 0.07618	0.00893 0.00894 0.0089 0.00334 0.00186 0.0099 0.07661 0.07822 0.0791 0.00001 0.00010 0.0000 0.00001 0.00002 0.0001 0.007261 0.0032 0.0001 0.07261 0.07379 0.0746 0.01183 0.00979 0.0079 0.00001 0.0001 0.0000 0.74211 0.74434 0.7460 0.00138 0.00980 0.0024 0.00536 0.00380 0.0024 0.07708 0.07803 0.0789	7 0.00047 0.00021 0.0 9 0.07974 0.08002 0.0 10 0.00000 0.000001 0.0 10 0.00000 0.00000 0.0 10 0.00000 0.00000 0.0 10 0.00000 0.00000 0.0 10 0.00001 0.00001 0.0 10 0.00001 0.00001 0.0 10 0.0001 0.00001 0.0 10 0.0001 0.00011 0.0 10 0.0001 0.00011 0.0	00897 0.00897 0.00897 0.00897 00009 0.00003 0.00001 0.00000 00000 0.00003 0.08026 0.08027 00000 0.00000 0.00000 0.00000 00000 0.00000 0.00000 0.00000 00002 0.00001 0.00000 0.00000 00002 0.00001 0.00010 0.00000 00370 0.00270 0.00190 0.00128 00370 0.00001 0.00001 0.00001 14908 0.74967 0.75012 0.75046 00005 0.00002 0.00001 0.00000 00005 0.00002 0.00001 0.00000 00065 0.00037 0.00220 0.00010 000137 0.00238 0.008272

ADD H201L)				
CASE= 0 0/F= 20.0000 P, ATM 4.0000 4.0000 P, PSIA 58.8 58.8 T, DEG K 1500.0 1400.0 T, DEG F 2240.3 2060.3 RHO, G/CC 9.4168-4 1.0089-3 M, MOL WT 28.977 28.977 CP, CAL/(G)(K) 0.3185 0.3140 GAMMA (S) 1.2745 1.2795 SON VEL,M/SEC 740.6 716.9	4,0000 4,0000 4,0 58.8 58.8 5 1300.0 1200.0 110 1880.3 1700.3 152 1.0866-3 1,1771-3 1,284 28.977 28.977 28. 0.3094 0.3047 0.2 1,2848 1,2905 1,2	8.8 58.8 58.8 0.0 1000.0 900.0 0.3 1340.3 1160.3 1-3 1.4125-3 1.5695-3 1.7 977 28.977 28.977 997 0.2943 0.2882 (= 0,7327 4.0000	4.0000 4.0000 4.0000 58.8 58.8 58.8 58.8 500.0 400.0 300.0 440.3 260.3 80.3 .8251-3 3.5313-3 5.1543-3 .28.977 28.977 31.721 0.2608 0.2547 0.4496 1.3568 1.3684 1.2148 441.2 396.3 309.1
MOLE FRACTIONS AR C02 0.09932 0.09932 H20(L) 0.00000 0.00000 H20 0.09440 N0 0.00065 0.00039 N2 0.74370 0.74383 OH 0.00004 0.00004 0.00002 0.005302 0.05315	0.09932 0.09932 0.09 0.00000 0.00000 0.00 0.09441 0.09442 0.09 0.00021 0.00011 0.00 0.74392 0.74397 0.74 0.00001 6.00000 0.00	332 0.09932 0.09932 0 0000 0.60000 0.00000 0 442 0.09442 0.09442 0 005 0.00002 0.00001 0 400 0.74402 0.74402 0 000 0.00000 0.00000 0	.09932 0.09932 0.09932 .00000 0.00000 0.00000 .09442 0.09442 0.09442	0.0000 0.00000 0.00000
CASE= 0 0/F= 20,0000 P, ATM 6,0000 6,0000 P, PSIA 88.2 88.2 T, DEG K 2800,0 2700.0 T, DEG F 4580.3 4400.3 RHO, G/CC 7,4205-4 7,7401-4 M, MOL HI 28,415 28,581 CP, CAL/4G1(k) 0,6546 0,5932 GAMMA (S) 1,1648 1,1726 SON VEL,M/SEC 976.9 959.7	6.0000 6.0000 6.0 88.2 88.2 8 2600.0 2500.0 24 4220.3 4040.3 386 8.0737-4 8.4241-4 8.795 28.708 28.602 28. 0.5285 0.4759 0.4 1.1827 1.1946 1.2	000 6.0000 6.0000 88.2 88.2 88.2 88.2 0.0 2300.0 2200.0 0.3 3680.3 3500.3 0.4 9.1912-4 9.6182-4 1.0868 28.911 28.939 30.4008 0.3772 (0.373 1.2197 1.2308	= 0.7327 6.0000 6.0000 6.0000 88.2 88.2 88.2 1300.0 2000.0 1900.0 3320.3 3140.3 2960.3 0082-3 1.0590-3 1.1119-3 1 28.955 28.965 28.971 0.3604 0.3485 0.3399 1.2402 1.2480 1.2544 864.8 846.4 827.1	6.0000 6.0000 6.0000 88.2 88.2 88.2 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 .1770-3 1.2463-3 1.3242-3 28.974 28.975 28.976 0.3332 0.3278 0.3230 1.2600 1.2650 1.2698 806.7 785.5 763.5
H 0.00189 0.00110 H02 0.00002 0.00002 H2 0.00325 0.00228 H20 0.08154 0.08491	0.00988 0.00622 0.00 0.08852 0.09251 0.09 0.00061 0.00032 0.00 0.00153 0.00038 0.00 0.00153 0.00038 0.00 0.08757 0.08961 0.09 0.01325 0.01122 0.00 0.00001 0.00001 0.00 0.73051 0.73393 0.73 0.00209 0.00130 0.00 0.00825 0.00618 0.00	368 0.00204 0.00106 0 527 0.09705 0.09813 0 016 0.00007 0.00003 0 001 0.00001 0.00001 0 0112 0.09222 0.09299 0 940 0.00777 0.00631 0 001 0.00001 0.00001 0 652 0.73845 0.73989 0 078 0.00035 0.00025 0 048 0.00039 0.00025 0	.00052 0.00023 0.00010 .09873 0.09905 0.09921 .00001 0.00000 0.00000	0.09424 0.09433 0.09437 0.00215 0.00151 0.00102 0.00001 0.00001 0.00000 0.74287 0.74323 0.74350 0.00001 0.00000 0.00000 0.00001 0.00016 0.00000

7.7

P, ATM 10.000 P, PS1A 147.0 T, DEG K 1500.0 T, DEG F 2240.3	0 147.0 147.0 147.0 1400.0 1300.0 1200.0 3 2060.3 1880.3 1700.3 3 2.5226-3 2.7166-3 2.9430-3 3 28.979 28.979 28.979 3 1.2747 1.2797 1.2853	PERCENT FUEL= 5.6604 10.000 10.000 10.00 147.0 147.0 147.0 147.1 1100.0 1000.0 900 1520.3 1340.3 1160 3.2106-3 3.5316-3 3.9240 28.979 28.979 28.97 0.3038 0.2983 0.293 1.2915 1.2985 1.300 638.4 610.4 580	.0 147.0 147.0 .0 800.0 700.0 .3 980.3 800.3 .3 4.4145-3 5.0452-3 5.6 .9 28.979 28.979 .0 0.2851 0.2779 .9 1.3166 1.3276	10.000 10.000 10.000 10.000 147.0 147.0 147.0 147.0 147.0 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 8860-3 7.0632-3 8.290-3 1.3214-2 28.979 28.979 28.979 32.530 0.2706 0.2635 0.2571 0.3552 1.3394 1.3517 1.3637 1.2349 480.2 440.4 395.6 307.7	
MOLE FRACTIONS AR 0.00880 C02 0.11801 H201L1 0.00000 H20 0.11222 N0 0.0003 N2 0.73685 OH 0.0003 O2 0.02365	1 0.11801 0.11802 0.11862 0.00000 0.00000 0.00000 0.11223 0.11224 0.11224 3 0.00026 0.00014 0.00007 5 0.73694 0.73700 0.73703 0.00001 0.00000 0.00000	0.00880 0.00860 0.008 0.11802 0.11802 0.1180 0.00000 0.00000 0.0000 0.11224 0.11224 0.1122 0.00003 0.00001 0.0000 0.73705 0.73706 0.7370 0.00000 0.00000 0.0000 0.02386 0.02387 0.0238	02 0.11802 0.11802 0 00 0.00000 0.00000 0 24 0.11224 0.11224 0 00 0.00000 0.00000 0 07 0.73707 0.73707 0 00 0.00000 0.00000 0	.00880 0.00880 0.00880 0.00880 .11802 0.11802 0.11802 0.11802 .00000 0.00000 0.00000 0.10915 .11224 0.11224 0.11224 0.00309 .00000 0.00000 0.00000 0.00000 .73707 0.73707 0.73707 0.73707 .00000 0.00000 0.00000 0.00000 .02388 0.02388 0.02388 0.02388	! ;)
CASE= 0 0/F= P, ATM 15.000 P, PSIA 220, 4 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 1.8588-3 M, MOL WT 28.471 CP, CAL/IGIKI 0.6210 GAMMA ISI 1.1686 SON VEL,M/SEC 977.5	1 220.4 220.4 220.4 2700.0 2600.0 2500.0 3 4400.3 4220.3 4040.3 3 1.9375-3 2.0201-3 2.1072-3 1 28.617 28.732 28.818 0.5646 0.5149 0.4684 5 1.1759 1.1852 1.1962	PERCENT FUEL = 5.6604 15.000 15.000 15.00 220.4 220.4 220 2400.0 2300.0 2200 3860.3 3690.3 3500 2.1996-3 2.2985-3 2.4051 28.879 28.920 28.9 0.4293 0.3988 0.376 1.2083 1.2201 1.233 913.7 898.2 881	.4 220.4 220.4 .0 2100.0 2000.0 .3 3320.3 3140.3 2 .3 2.5210-3 2.6478-3 2.15 .2 28.961 28.970 2 .4 0.3607 0.3497 0 .0 1.2394 1.2465	15.000	
MOLE FRACTIONS AR CO 0.00865 CO 0.02228 CO2 0.09367 H 0.00124 H02 0.00002 H2 0.00001 H2 0.10098 N0 0.1299 N02 0.00001 N2 0.71765 O 0.00227 OH 0.01032 O2 0.0267	8 0.01598 0.01083 0.00690 7 0.10056 0.10618 0.11046 4 0.00073 0.00041 0.00021 2 0.00002 0.00001 0.00001 3 0.10399 0.10637 0.10817 9 0.1054 0.00915 0.00761 1 0.00001 0.00001 0.00001 5 0.72239 0.72621 0.72917 7 0.00146 0.00092 0.00045 0 0.00796 0.00602 0.00445	0.10951 0.11045 0.111 0.00629 0.00515 0.004 0.00001 0.00001 0.000 0.73138 0.73298 0.734 0.00033 0.00019 0.000 0.00322 0.00227 0.001	21 0.00059 0.00026 0 57 0.11735 0.11771 0 50 0.00001 0.00000 0 50 0.00000 0.00000 0 50 0.00001 0.00000 0 50 0.11154 0.11182 0 51 0.00331 0.00257 0 51 0.00001 0.00001 0 52 0.73494 0.73553 0 55 0.00005 0.00003 0 55 0.00006 0.00006 0	.00880 0.00880 0.00880 0.00880 .00011 0.00004 0.00001 0.00000 .11789 0.11797 0.11800 0.11801 .00000 0.00000 0.00000 0.00000 .00000 0.00000 0.00000 0.00000 .00000 0.00000 0.00000 0.00000 .11200 0.11211 0.11221 0.11221 .00195 0.00142 0.00100 0.0000 .00000 0.00000 0.00000 0.00000 .73597 0.73629 0.73654 0.73672 .00001 0.00000 0.00000 0.00000 .00039 0.00022 0.00012 0.00000	

ADD H20(L) ADD CISE

0.00800

0.00612

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CASE =
                    0/F= 14.6540
                                        F/A = 0.06824
                                                           PERCENT FUEL= 6.3882
                                                                                          PHI= 1.0000
                                                                        20.000
P. ATM
                   20,000
                                         20.000
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P. PSIA
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                   1500.0
                                                   1200.0
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                                                                                                                   600.0
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                                                                                                                                         400.0
                                                                                                                                                   300.0
T, DEG K
                              1400.0
                                         1300.0
                 2240.3 2060.3 1880.3 1700.3 1520.3 1340.3 1160.3 980.3 800.3 620.3 440.3 260.3 80.3 4.7090-3 5.0454-3 5.4336-3 5.8864-3 6.4215-3 7.0637-3 7.8485-3 8.8296-3 1.0091-2 1.1773-2 1.4127-2 1.7848-2 2.6914-2
                                                             1520.3
                                                                                   1160.3
                                                                                                                   620.3
T, DEG F
RHO, G/CC
                   28.980
                              28,981
0.3214
                                                                                                                             28,981
M, MOL HT
                                        28,981
                                                   28.981
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                                                                                                                                        29,291
                                                                                                                                                  33,127
CP, CAL/IGITED
                   0.3259
                                        0.3169
                                                   0.3122
                                                              0.3071
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                                                                                                        0.2806
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GAMMA (S)
                   1.2667
                              1,2713
                                        1,2761
                                                   1.2815
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                                                                        1,2944
                                                                                   1.3027
                                                                                             1.3124
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                                                                                                                  1.3353
                                                                                                                             1.3477
                                                                                                                                        1,1907
                                                                                                                                                  1,2379
SON VEL, M/SEC
                   738.3
                                         689.9
                                                    664.2
                                                               637.4
                                                                         609.4
                                                                                    580.0
                                                                                              548.8
                                                                                                         515.5
                                                                                                                   479.4
                                                                                                                              439.7
                                                                                                                                         367.7
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                               714.6
MOLE FRACTIONS
AR
                  0.00873 0.00873
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             0.00073 0.00873
0.00004 0.00001
0.13312 0.13315
0.00001 0.00000
0.00000 0.00000
0.12666 0.12667
0.00001 0.00000
0.73141 0.73142
0.00002 0.00001
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CO
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0.13316 0.13316
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0.12668 0.12668
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0.73143 0.73143
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C02
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H201L1
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H20
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       CASE= 0 0/F= 14.6540
                                        F/A= 0.06824
                                                            PERCENT FUEL= 6.3882
                                                                                          PHI = 1.0000
                                                                                   30,000
P, ATM
                    30,000
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P. PSIA
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T, DEG K
                   2800.0
                              2700.0
                                        2600.0
                                                   2500.0
                                                             2400.0
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                                                                                   2200.0
                                                                                             2100.0
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                2800.0
4580.3
                                                   4040.3
                                                                                   3500.3
                                                                                             3320.3
T, DEG F
                              4400.3
                                        4220.3
                                                              3860.3
                                                                        3680.3
                                                                                                       3140.3
                                                                                                                  2960.3
                                                                                                                             2780.3
                                                                                                                                        2600.3
                 4580.3 4400.3 4220.3 4040.3 3860.3 3680.3 3500.3 3320.3 3140.3 2960.3 2780.3 2600.3 2420.3 3.7111-3 3.8666-3 4.0309-3 4.2050-3 4.3907-3 4.5898-3 4.8047-3 5.0380-3 5.2931-3 5.5739-3 5.8849-3 6.2319-3 6.6218-3
RHO, G/CC
M, MOL NT
                                                                                                        28,956
                                                                                                                             28.974
                    28.422
                              28.555
                                         28.666
                                                   28.754
                                                              28.823
                                                                        28.875
                                                                                   28.912
                                                                                              28.938
                                                                                                                  28.967
                                                                                                                                        28,978
                                                                                                        0,3622
                                                                                                                            0.3424
CP, CAL/(G)(K) 0.5994
                              0.5566
                                         0.5161
                                                   0.4791
                                                              0.4464
                                                                        0.4185
                                                                                   0.3954
                                                                                             0.3768
                                                                                                                  0,3510
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GAMMA (S) 1.1718
SON VEL.M/SEC 979.7
                              1,1778
                                         1.1850
                                                   1.1934
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                                                                       1.2122
                                                                                   1,2217
                                                                                             1,2308
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SON VEL, M/SEC
                               962.2
                                          945.3
                                                    928.8
                                                               912.4
                                                                         896.0
                                                                                    879.2
                                                                                              861.7
                                                                                                         843.5
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MOLE FRACTIONS
AR
                  0.00856
                             0.00860
                                       0.00864 0.00866
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CO
                  0.02789
                            0.02166
                                       0.01631
                                                  0.01188
                                                            0.00835
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C02
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H2
H20
                  0.11550
                             0,11829
                                       0.12053
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NO
                  0.00802 0.00619
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0.73002 0.73059 0.73096
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                             0.71759
                 0.00099
0.00730
0.01014
                                                0.00018 0.00009 0.00004 0.00002
0.00266 0.00178 0.00114 0.00070
0.00452 0.00323 0.00222 0.00146
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                             0.00059
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OH
                            0.00538
                                       0.00385
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0.00017

0.00008

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PERCENT FUEL= 6.5421
         CASE =
                          0/F= 14.2857
                                                      F/A = 0.07000
                                                                                                                      PHI= 1.0258
                                                                                               40.000
P, ATM
                          40.000
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P. PSIA
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T. DEG K
                          1500.0
                                                      1300.0
                                                                    1200.0
                                                                                                1000.0
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                                        1400.0
                                                      1880.3
                                                                    1700.3
                                                                                  1520.3
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                                                                                                                             980.3
                                                                                                                                          800.3
                                                                                                                                                        620.3
                                                                                                                                                                      440.3
                                                                                                                                                                                    260.3
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                          2240.3
                                        2060.3
RHO, G/CC
                       9.3710-3 1.0040-2
                                                   1.0813-2
                                                                   .1714-2 1.2779-2 1.4057-2 1.5619-2 1.7582-2 2.0138-2 2.3531-2 2.8252-2 3.8132-2 5.4065-2
M, MOL WT
                          28.836
                                        28.836
                                                      28,836
                                                                    28.836
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                                                                                                                           28.854
                                                                                                                                         28,919
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                                                                                                                                                                                   31,290
                                                                                                                                                                                                33,273
CP, CAL/IGITED
                          0.3261
                                        0,3226
                                                      0.3188
                                                                    0.3146
                                                                                  0.3102
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                                                                                                                                                                     0.2678
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                                                                                 1.2857
GAMMA ISI
                          1.2679
                                        1,2716
                                                      1,2758
                                                                    1.2804
                                                                                                1.2916
                                                                                                             1.2985
                                                                                                                           1.2989
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                           740.5
                                         716.5
                                                        691.5
                                                                     665,6
                                                                                   638.6
                                                                                                 610.3
                                                                                                               580.5
                                                                                                                             547.2
                                                                                                                                           512.8
                                                                                                                                                        478.1
                                                                                                                                                                      439.3
                                                                                                                                                                                    356.2
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SON VEL, M/SEC
MOLE FRACTIONS
AR
                        0.00867 0.00867
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CISI
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0.00517
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CH4
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0.13366
0.00703
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CO
                        0.00727 0.00692
                                                    0.00647
                                                                  0.00590
                       0.10727 0.00692
0.12840 0.12876
0.00278 0.00313
0.00000 0.00000
0.12630 0.12595
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0.00487
0.00000
0.12420
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0.00577
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0.00679
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C02
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H201L1
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N2
                                                    0.72657
        CASE = 0
                             O/F= 14,2857
                                                      F/A= 0.07000
                                                                               PERCENT FUEL= 6.5421
                                                                                                                      PHI = 1.0258
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P, ATM
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P. PSIA
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T. DEG K
                    2800.u
4580.3
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                                        2700.0
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T. DEG F
                                        4400.3
                                                      4220.3
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RHO, G/CC
M. MOL WT
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CP, CAL/IGIIKI
                          0.5646
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GAMMA (S) 1.1776
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SON VEL, M/SEC
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MOLE FRACTIONS
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CO
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N2
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                        0.00648 0.00465
                                                                  0.00186
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ADD C(S) ADD H20(L)

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0/F= 11,1111
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                                                  PERCENT FUEL= 8.2569
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P. ATM
                0.5000
                         0.5000
                                  0.5000
                                           0.5000
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P. PSIA
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                 1500.0
T, DEG K
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                                   1300.0
                                           1200.0
                                                    1100.0
                                                                                800.0
                                                                                         700.0
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T, DEG F
                2240.3
                         2060.3
                                  1880.3
                                           1700.3
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RHO, G/CC
               1.1094-4 1.1887-4 1.2801-4 1.3868-4 1.5129-4 1.6642-4 1.8492-4 2.0871-4 2.4507-4 2.9179-4 3.5271-4 4.4151-4 6.5478-4
M, MOL WT
                27.311
                                           27,311
                                                             27,311
                                                                               27,402
                         27.311
                                  27,311
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                                                                      27,313
                                                                                       28,153
                                                                                                28,732
                                                                                                         28.942
                                                                                                                  28,983
                                                                                                                           32,237
CP, CAL/(G)(K)
                0.3404
                         0.3385
                                  0.3369
                                           0.3356
                                                    0.3349
                                                             0.3350
                                                                      0.3383
                                                                               0.4534
                                                                                       0.5858
                                                                                                0.3868
                                                                                                         0.3016
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                1.2719
GAMMA (S)
                         1.2738
                                  1,2755
                                           1,2768
                                                    1,2776
                                                             1.2776
                                                                      1.2756
                                                                               1,2284
                                                                                        1.1964
                                                                                                 1,2545
                                                                                                          1.3061
                                                                                                                  1,3363
                                                                                                                           1,1322
SON VEL, M/SEC
                 762.1
                          736.8
                                   710.5
                                            683.0
                                                     654.1
                                                              623.6
                                                                       591.2
                                                                                546.1
                                                                                         497.3
                                                                                                 466.7
                                                                                                           433.1
                                                                                                                   391.6
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MOLE FRACTIONS
AR
               0.00806
                        0.00806
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                                          0.00866
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CO
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C02
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H2
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N2
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                                                                                               0.69424
                                                                                                        0.69143
                                                                                                                0.68436
                                                                                                                          0.67589
     CASE = 0
                0/F= 11.1111
                                                  PERCENT FUEL= 8.2569
                                  F/A= 0.09000
                                                                           PHI= 1.3189
P, ATM
P, PSIA
T, DEG K
T, DEG F
                1.0000
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                2800.0
                                   2600.0
                                           2500.0
                                                             2300.0
                                                                      2200.0
                                                                              2100.0
                                                                                                1900.0
                         2700.0
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                                                                                                                           1600.0
                4580.3
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                         4400.3
                                   4220.3
                                           4040.3
                                                    3860.3
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RHO, G/CC
              1.1564-4 1.2113-4 1.2668-4 1.3235-4 1.3824-4 1.4446-4 1.5115-4 1.5842-4 1.6638-4 1.7516-4 1.8490-4 1.9578-4 2.0802-4
M, MOL WT
                 26.569
                                  27.028
                                           27,151
                                                    27,224
                                                             27.265
                                                                      27.287
                                                                              27.299
                                                                                                27,308
                         26.837
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CP. CAL/(G)(K)
                                           0.5252
                                                                      0,3801
                                                                                                         0.3475
                0.9182
                         0.7708
                                  0.6343
                                                    0.4510
                                                             0.4059
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                                                                              1,2526
GAMMA (S)
                                  1,1723
                                                    1,2135
                                                             1,2312
                                                                      1.2440
                1.1474
                          1.1570
                                                                                        1.2584
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                                                                                                                           1,2699
SON VEL, M/SEC
                 1002.7
                          983.8
                                   968.3
                                            955.5
                                                     943.1
                                                              929.3
                                                                       913.2
                                                                                         875.4
                                                                                                 854.5
                                                                                                          832.7
                                                                                                                   810.0
                                                                                                                            786.5
MOLE FRACTIONS
AR
               0.00785
                        0.00792
                                 0.00798
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CO
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                                                                                      0.08527
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C02
               0.05346
                        0.06044
                                 0.06584
                                          0.06931
                                                   0.07183
                                                            0.07336
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               0.01411
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H
                        0.00946
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H2
               0.03009
                        0.02808
                                 0.02687
                                          0.02646
                                                   0.02666
                                                            0.02725
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                                                                                               0.03154
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                                                                                                                          0.03695
                                          0.12290
                                                            0.12539
H20
               0.10582 0.11379
                                 0.11941
                                                   0,12472
                                                                     0.12532
                                                                              0.12476
                                                                                      0.12385
                                                                                               0.12266
                                                                                                        0.12119
                                                                                                                 0.11944
                                                                                                                          0.11734
               0.00586
                                                   84000,0
                                                                    0.00014
0.67486
NO
                        0.00394
                                 0.00241
                                          0.00134
                                                            0.00032
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                                                                                               0.00001
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                                                                                                                          0.00000
N2
               0.65423
                        0,66183
                                 0.66731
                                          0.67089
                                                   0,67303
                                                            0.67422
                                                                              0.67520
                                                                                      0.67537
                                                                                               0.67545
                                                                                                        0.67549
                                                                                                                 0.67551
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               0.00415
                        0.00213
                                 0.00097
                                          0.00040
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OН
             0.01428 0.01005
                                 0.00658
                                                   0.00227
                                                            0.00120
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                                                                                                                 0.00000 0.00000
               0.00590 0.00351
                                 0.00177
                                          0.00076
                                                   0.00028 0.00009 0.00003
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ADD CISI ADD H201L1

P, PSIA 22.0 T, DEG K 1500.0 1 T, DEG F 2240.3 2 RHO, G/CC 3.2449-4 3.4 M, MOL HT 26.626 2 CP, CAL/(G1(K) 0.3459 GAMMA (S) 1.2751 1	1,5000 1,5000 1,5000 22.0 22.0 22.0 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	ERCENT FUEL= 9.0909 P 1.5000 1.5000 1.5000 22.0 22.0 22.0 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 4249-4 4.8679-4 5.4231-4 26.627 26.630 26.700 0.3428 0.3474 0.4414 1.2785 1.2756 1.2368 662.7 631.1 588.8	800.0 700.0 600 980.3 800.3 620	.0 22.0 22.0 22.0 20.0 .0 500,0 400.0 300.0 .3 440.3 260.3 80.3 -4 1.0588-3 1.3247-3 2.1050-3 21 28,960 28,966 34,545 58 0.2964 0.2759 0.7405 81 1.3087 1.3313 1.1531
C (5) 0.00000 0. CH4 0.00000 0. CD4 0.00000 0. CD 0.10313 0. CD2 0.07085 0. H2 0.05982 0. H20 (L1 0.00000 0. H20 0.10581 0. NH3 0.00000 0.	00000	0.00.79 0.00779 0.00781 0.00000 0.00000 0.00000 0.00000 0.00006 0.00136 0.08366 0.07566 0.06396 0.09032 0.09829 0.10914 0.07927 0.08706 0.09394 0.00000 0.00000 0.00000 0.08634 0.07845 0.66936 0.00001 0.00002 0.00004 0.65260 0.65267 0.65438	0.00796 0.00805 0.008 0.01075 0.03187 0.042 0.01099 0.01638 0.017 0.02884 0.00446 0.000 0.12724 0.12698 0.118 0.07213 0.03447 0.010 0.00000 0.00000 0.000 0.07506 0.10372 0.124 0.00007 0.00008 0.000 0.056695 0.67399 0.678	0.05401 0.06649 0.08143 93 0.01443 0.00812 0.00003 93 0.00001 0.00000 0.00000 98 0.11056 0.10220 0.09254 72 0.00185 0.00013 0.00000 90 0.00000 0.00000 0.14777 90 0.0185 0.00000 0.01781 90 0.00000 0.00000 0.00000
P, PSIA 29,4 T, DEG K 2800.0 2 T, DEG F 4580.3 4 RHO, G/CC 2.2830-4 2.3 M, MOL NT 26.327 2 CP, CAL/IGIIKI 0.6943 GAMMA ISI 1.1710 1	2,0000 2,0000 2,0000 29,4 29,4 29,4 2700,0 2600,0 2500,0 4400,3 4220,3 4040,3	2.0000 2.0000 2.0000 29.4 29.4 29.4 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3	HI= 1.4654 2.0000 2.0000 2.00 29.4 29.4 29.4 2100.0 2000.0 1900 3320.3 3140.3 2966 3.0894-4 3.2445-4 3.4156 26.618 26.622 26.6 0.3653 0.3592 0.35 1.2596 1.2637 1.26 909.0 888.5 865	.4 29.4 29.4 29.4 .0 1800.0 1700.0 1600.0 .3 2780.3 2600.3 2420.3 -4 3.6053-4 3.8174-4 4.0561-4 24 26.625 26.626 26.626 .51 0.3521 0.3497 0.3477 68 1.2693 1.2714 1.2734
CO 0.12430 0. CO2 0.04707 0. H 0.01185 0. H2 0.04249 0. H20 0.11030 0. N0 0.00303 0.	12218 0.12064 0.11948 0.5016 0.05234 0.05370 0.00556 0.00367 0.00556 0.00367 0.04220 0.04246 0.04310 0.11483 0.11761 0.11905 0.00185 0.00185 0.00055 0.00055 0.64831 0.65008	0.00778 0.00778 0.00779 0.11850 0.11755 0.11653 0.05513 0.05624 0.05735 0.00234 0.00144 0.00085 0.04397 0.04499 0.04613 0.11956 0.11942 0.11882 0.00027 0.00013 0.00005 0.00027 0.00013 0.00005 0.65116 0.65180 0.65217 0.00004 0.00001 0.00000	0.00779 0.00779 0.007 0.11537 0.11404 0.112 0.05856 0.05991 0.061 0.00048 0.00025 0.000 0.04739 0.04880 0.055 0.11787 0.11664 0.115 0.00002 0.00001 0.000 0.65238 0.65249 0.652	50 0.11070 0.10858 0.10609 47 0.06328 0.06540 0.06789 13 0.00006 0.00002 0.00001 40 0.05223 0.05436 0.05686 14 0.11336 0.11125 0.10877 00 0.00000 0.00000 0.00000

CASE= 0 0/F= 0.000 P, ATM 50.000 50.00 P, PSIA 734.3 734 T, DEG K 2800.0 2700 T, DEG F 4580.3 4400 RHO, G/CC 6.2931-3 6.5298 M, MOL NT 28.918 28.9 CP, CAL//GI/KI 0.3692 0.35 GAMMA (SI 1.2376 1.24 SON VEL,M/SEC 998.2 982	00 50.000 50.000 50.000 50.000 50.000 .8 734.8 734.8 734.8 734.8 734.8 .0 2600.0 2500.0 2400.0 2300.0 .3 4220.3 4040.3 3860.3 3680.3 -3 6.7836-3 7.0568-5 7.3522-3 7.6727-3 34 28.945 28.953 28.958 28.96 0.3506 0.3432 0.3366 0.3306 28 1.2480 1.2530 1.2580 1.2680	734.8 734.8 734.8 2000.0 2000.0 2000.0 3 3500.3 3220.3 3140.3 3 8.0220-3 8.4043-3 8.8247-3 9 28.963 28.964 28.965 0.3255 0.3205 0.3158 1.2677 1.2726 1.2776	50.000 50.000 50.000 50.000 734.8 734.8 734.8 734.8 734.8 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 2892-3 9.8053-3 1.0382-2 1.1031-2 28,965 28,965 28,965 28,965 0.3113 0.3069 0.3025 0.2982 1.2827 1.2879 1.2933 1.2988 836.4 815.7 794.4 772.3
MOLE FRACTIONS AR CO 0.00931 0.009 CO2 0.00021 0.000 NO 0.03583 0.0031 NO2 0.00015 0.000 N2 0.76166 0.764 0 0.00332 0.002 02 0.18944 0.192	01 0.00001 0.00000 0.00000 0.00000 0.00029 0.00030 0.00030 0.00033 34 0.02708 0.02208 0.01939 0.0160 14 0.00013 0.00013 0.00012 0.0001 33 0.76677 0.76898 0.77097 0.7727' 23 0.00144 0.00090 0.00054 0.0003	0 0.00000 0.00000 0.00000 0 0 0.00030 0.00030 0.00030 0 0.01298 0.01030 0.00798 0 0.00011 0.00010 0.00009 0 0 0.77432 0.77569 0.77687 0 0.00017 0.00009 0.00004 0	.00932 0.00932 0.00932 .00000 0.00000 0.00000 0.00000 .00030 0.00030 0.00030 0.00030 .00001 0.000438 0.00308 0.00207 .00008 0.00007 0.00006 0.00006 .77787 0.77869 0.77934 0.77985 .00002 0.00001 0.00000 0.00000 .20640 0.20722 0.20789 0.20840
CASE= 0 0/F= 0.000 P, ATM 50.000 50.0 P, PSIA 734.8 734 T, DEG k 1500.0 1400 T, DEG F 2240.3 2060 RHO, G/CC 1.1766-2 1.2607 M, MOL WT 28.965 28.9 CP, CAL/(G)!K! 0.2939 0.28 GAMMA (S) 1.3044 1.31 SON VEL,M/SEC 749.4 725	00 50.000 50.000 50.000 50.000 50.000 .8 734.8 734.8 734.8 734.8 734.8 .0 1300.0 1200.0 1100.0 1000.1 .3 1880.3 1700.3 1520.3 1340.2 -2 1.3576-2 1.4708-2 1.6045-2 1.7649-65 28.965 28.965 28.965 28.965 0.2856 0.2815 0.2773 0.273 01 1.3161 1.3222 1.3287 1.3367	734.8 734.8 734.8 734.8 900.0 800.0 700.0 800.0 700.0 800.3	50.000 50.000 50.000 50.000 734.8 734.8 734.8 734.8 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 9415-2 3.5298-2 4.4122-2 5.8830-2 28.964 28.964 28.964 28.964 0.2512 0.2461 0.2422 0.2402 1.3757 1.3865 1.3952 1.3999 486.8 446.1 400.3 347.2
MOLE FRACTIONS AR CO2 0.00932 0.009 NO 0.00131 0.000 NO2 0.00005 0.000 N2 0.78023 0.780 O2 0.20879 0.209	30 0.00030 0.00030 0.00030 0.00031 78 0.00043 0.00021 0.00009 0.00000 04 0.00003 0.00002 0.00002 0.0000 50 0.78067 0.78078 0.78084 0.7808	0 0.00030 0.00030 0.00030 0 0 0.00001 0.00000 0.00000 0 0.00001 0.00001 0.00000 0 0 0.78088 0.78089 0.78089 0	0.00932 0.00932 0.00932 0.00030 0.00030 0.00030 0.00030 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.78089 0.78089 0.78089 0.20949 0.20949 0.20949 0.20949

P, PSIA 7.3 T, DEG K 1500.0 14 T, DEG F 2240.3 20 RHO, G/CC 1.1768-4 1.26 M, MOL HT 28.969 28 CP, CAL/IGIIKI 0.3047 G GAMMA (S) 1.2907 1.	.5000 0.5000 0.3	0.5000 0.5000 0.5000 0 7.3 7.3 7.3 7.3 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 6047-4 1.7652-4 1.9613-4 2.2 28.969 28.969 28.969 0.2818 0.2764 0	5 0.2931 0.5000 0.5000 0.5000 7.3 7.3 7.3 800.0 700.0 600.0 980.3 800.3 620.3 2065-4 2.5217-4 2.9420-4 28.969 28.969 28.970 0.2642 0.2579 1.3399 1.3508 1.3623 554.7 520.9 484.3	0.5000 0.5000 0.5000 7.3 7.3 7.3 7.3 500.0 400.0 300.0 440.3 260.3 80.3 1.5304-4 4.4130-4 5.8840-4 28.970 2.474 0.2442 0.2522 0.2474 0.2442 1.3737 1.3837 1.3907 444.0 398.6 346.0
CO2 0.04106 0.0 H20 0.03884 0.0 ND 0.00108 0.0 N2 0.76516 0.7 OH 0.00005 0.0	04106 0.04106 0.04'06 0 03886 0.03886 0.03687 0 00065 0.00036 0.00018 0 76539 0.76554 0.76563 0 00002 0.00001 0.00000 0	0.04106	04106 0.04106 0.04106 0.03887 0.03887 0.03887 0.0000 0.00000 0.00000 76571 0.76572 0.0000 0.00000 0.00000	0.00914 0.00914 0.00914 0.04106 0.04106 0.04106 0.03887 0.03887 0.03887 0.00000 0.00000 0.00000 0.76572 0.76572 0.76572 0.00000 0.00000 0.00000 0.14521 0.14521 0.14521
P, PSIA 14.7 T, DEG K 2800.0 27 T, DEG F 4580.3 44 RHO, G/CC 1.2323-4 1.28 M, MOL HT 28.314 28 CP, CAL/IGI(K) 0.6899 0. GAMMA ISI 1.1638 1.	.0000 1.0000 1.0000 14.7 14.7 14.7 700.0 2600.0 2500.0 400.3 4220.3 4040.3 367-4 1.3432-4 1.4022-4 1.3 3.508 28.656 28.764 6.6116 0.5418 0.4827	1.0000 1.0000 1.0000 14.7 14.7 14.7 14.7 14.7 14.7 13.000 1.00000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.00000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.00000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.00000 1.0	= 0.2931 1.0000 1.0000 1.0000 14.7 14.7 14.7 100.0 2000.0 1900.0 1320.3 3140.3 2960.3 7796-4 1.7643-4 1.8576-4 1 28.943 28.955 28.962 1.3534 0.3394 0.3291 1.2474 1.2572 1.2655 867.5 849.7 830.8	1.0000 1.0000 1.0000 14.7 14.7 14.7 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 7611-4 2.0766-4 2.2065-4 28.966 28.968 28.969 0.3212 0.3149 0.3095 1.2727 1.2791 1.2851 810.9 790.0 768.2
CO 0.01204 0.0 CO2 0.02810 0.0 H 0.00334 0.0 HO2 0.00002 0.0 H2 0.00168 0.0 H20 0.02694 0.0 N0 0.02826 0.0 N0 0.0001 0.0 N2 0.73425 0.7 O 0.01887 0.0 OH 0.01538 0.0	00866 0.00584 0.00370 0 30175 0.003477 0.03707 0 00197 0.00111 0.00059 0 00001 0.00001 0.00001 0 002974 0.03206 0.033 2 0 02590 0.02179 0.01870 0 00001 0.00001 0.00001 0 074100 0.74652 0.75093 0 01259 0.0083 0.00524 0 01259 0.00937 0.00764 0	0.00220 0.00123 0.00064 0.003867 0.003972 0.04035 0.00019 0.00001 0.00006 0.00001 0.00001 0.00001 0.0003726 0.001578 0.01308 0.01064 0.00001 0	.00913 0.00914 0.00914 .00031 0.00014 0.00006 .04071 0.04090 0.04099 .00002 0.00001 0.00000 .00000 0.00000 0.00000 .00006 0.00003 0.00001 .03783 0.3823 0.03849 .00846 0.00656 0.00495 .00001 0.00001 0.00001 .76078 0.76204 0.76303 .00052 0.00025 0.00011 .00185 0.00117 0.00070 .14031 0.14152 0.14250	0.009;4 0.00914 0.00914 0.00002 0.00001 0.00000 0.04104 0.04105 0.04106 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.03866 0.03876 0.03881 0.00361 0.00254 0.00170 0.00001 0.00001 0.00001 0.75380 0.76440 0.76484 0.00005 0.00002 0.00001 0.00001 0.00001 0.00010 0.14327 0.14387 0.14432

CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC 3 M, MOL WT CP, CAL/(G)(K) GAMMA (SI) SON VEL,M/SEC	1.5000 22.0 1500.0 2240.3	33.333 1.5000 22.0 1400.0 2060.3 3.7829-4 28.972 0.3048 1.2904 720.0	F/A= 0. 1.5000 22.0 1300.0 1880.3 4.0739-4 28.972 0.3003 1.2960 695.4	1.5000 22.0 1200.0 1700.3	PERCENT F 1.5000 22.0 1100.0 1520.3 4.8146.4 28.972 0.2910 1.3084 642.7	1.5000 22.0 1000.0 1340.3	1.5000 22.0 900.0 1160.3	PHI= 0.439 1.5000 22.0 800.0 980.3 6.6201-4 28.972 0.2742 1.3336 553.3	1.5000 22.0 700.0 800.3	1.5000 22.0 600.0 620.3 8.8268-4 28.972 0.2612 1.3561 483.2	1.5000 22.0 500.0 440.3 1.0592-3 28.972 0.2551 1.3678 443.0	1.5000 22.0 400.0 260.3 1.3240-3 28.972 0.2499 1.3784 397.8	1.5000 22.0 300.0 80.3 1.8302-3 30.037 0.7439 1.1832 313.5	
MOLE FRACTIONS AR CO2 H20(L) H20 NO N2 OH O2	0.00905 0.06086 0.00000 0.05772 0.00095 0.75786 0.00005 0.11351	0.00905 0.06086 0.00000 0.05773 0.00057 0.75806 0.00002 0.11371	0.00905 0.06086 0.00000 0.05774 0.00031 0.75819 0.00001 0.11384	0.00905 0.06066 0.00000 0.05774 0.00016 0.75827 G.00000 0.11392	0.00905 0.06086 0.00000 0.05774 0.00007 0.75831 0.00000 0.11397	0.00905 0.06086 0.00000 0.05774 0.00003 0.75833 0.00000 0.11399	0.00905 0.06086 0.00000 0.05774 0.00001 0.75834 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.03545 0.02229 0.00000 0.75835 0.00000 0.11400	
CASE = 0 P, A1M P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	2.0000 29.4 2800.0 4580.3	33.3333 2.0000 29.4 2700.0 4400.3 2.5774-4 28.552 0.5946 1.1734 960.5	F/A= 0. 2.0000 29.4 2600.0 4220.3 2.6892-4 28.687 0.5298 1.1840 944.6	2.0000 29.4 2500.0 4040.3	PERCENT 6 2.0000 29.4 2400.0 3860.3 2.9303-4 28.854 0.4312 1.2096 914.6	2.0000 29.4 2300.0 3680.3	2.0000 29.4 2200.0 3500.3	PHI= 0.439 2.0000 29.4 2100.0 3320.3 3.3598-4 28.948 0.3554 1.2450 866.6	2.0000 29.4 2000.0 3140.3	2.0000 29.4 1900.0 2960.3 3.7136-4 28.965 0.3329 1.2615 829.5	2.0000 29.4 1800.0 2780.3 3.9225-4 28.968 0.3255 1.2680 809.4	2.0000 29.4 1700.0 2600.3 4.1536-4 28.970 0.3194 1.2740 788.4	2.0000 29.4 1600.0 2420.3 4.4133-4 28.971 0.3142 1.2795 766.5	
MOLE FRACTIONS AR CO CO2 H H02 H2 H20 N0 N0 00 OH	0.00887 0.01505 0.04456 0.00271 0.00022 0.00222 0.04505 0.00528 0.00001 0.73008 0.01584 0.01584	0.00892 0.01066 0.04932 0.00158 0.00005 0.00157 0.04817 0.02223 0.00001 0.73623 0.00805 0.01273 0.10051	0.00896 0.00711 0.05315 0.00088 0.00001 0.00106 0.05070 0.01930 0.00001 0.74123 0.00524 0.00994	0.00900 0.00446 0.05600 0.00046 0.00001 0.005268 0.01651 0.00001 0.74520 0.00329 0.00754	0.00902 0.00264 0.05797 0.00023 0.00001 0.005419 0.01391 0.74830 0.00198 0.00594	U.00903 0.00147 0.05924 0.00011 0.00001 0.005532 0.01152 0.75069 0.00114 0.00395 0.10727	0.00904 0.00077 0.06000 0.00005 0.00001 0.005614 0.00937 0.00001 0.75254 0.00063 0.00271 0.10861	0.00905 0.00037 0.06043 0.00002 0.00000 0.00007 0.05671 0.00745 0.0001 0.75398 0.00032 0.00179		0.00905 0.00007 0.06077 0.00000 0.00000 0.00002 0.05737 0.00436 0.00001 0.75598 0.00007 0.0068	0.00905 0.00003 0.06082 0.00000 0.00000 0.005753 0.00318 0.00013 0.75666 0.00003 0.0003 0.11230	0.00905 0.00001 0.06084 0.00000 0.00000 0.00000 0.05763 0.00224 0.00001 0.75718 0.00001 0.00020 0.011282	0.00905 0.00000 0.06085 0.00000 0.00000 0.00000 0.05769 0.00150 0.00001 0.75757 0.00000 0.00010 0.11322	

P, PSIA 44.1 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 7.0620-4 7.1 M, MOL WT 28.974 CP, CAL/(GI(K) 0.3140	3.0000 3.0000 3.0000 44.1 44.1 44.1 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	PERCENT FUEL= 3. 3.0000 3.0000 44.1 44.1 1100.0 1000.0 1520.3 1340.3 9.6301-4 1.0593-3 28.974 28.974 0.2954 0.2902 1.3024 1.3095 641.2 613.0	44.1 44.1 900.0 800.0 1160.3 980.3 1.1770-3 1.3241-3 1.5 28.974 28.974 2 0.2843 0.2779	3.0000 3.0000 44.1 44.1 700.0 600.0 800.3 620.3 5133-3 1.7655-3 2 28.974 28.974 0.2712 0.2644 1.3386 1.3503 518.5 482.2	3,0000 3,0000 3,0000 44.1 44.1 44.1 500.0 400.0 300.0 440.3 260.3 80.3 1186-3 2,6483-3 3,7783-3 28,974 28,974 31,004 0,2580 0,2523 0,5030 1,3622 1,3733 1,2101 442.1 397.0 312.0
CO2 0.08027 0 H20(L1 0.00000 0 H20 0.07623 0 NO 0.00081 0 N2 0.75070 0 OH 0.00004 0	0.00897 0.00897 0.00P97 0.08027 0.08027 0.08027 0.00000 0.00000 0.00000 0.07624 0.07625 0.007625 0.00048 0.00027 0.00013 0.75087 0.75098 0.75105 0.00002 0.00001 0.00000 0.08314 0.08325 0.08332	0.00897 0.00897 0.08027 0.08027 0.00000 0.00000 0.07625 0.07625 0.00006 0.075111 0.00000 0.00000 0.08336 0.08338	0.08027 0.08027 0 0.00000 0.00000 0 0.07625 0.07625 0 0.00001 0.00000 0 0.75112 0.75112 0 0.00000 0.00000 0	.08027 0.08027 (.00000 0.00000 (.07625 0.07625 0.0000 0.00000 (.75112 0.75112 0.0000 0.00000 (.00000 0.00000 0.00000 0.00000 (.00000 0.00000 0.00000 (.000000 0.00000 0.00000 (.000000 0.00000 0.00000 (.000000 0.00000 0.00000 (.000000 0.00000 0.00000 (.000000 0.00000 0.00000 (.000000 0.00000 0.00000 (.000000 0.00000 0.00000 0.00000 (.000000 0.00000 0.00000 0.00000 (.000000 0.00000 0.00000 0.00000 (.000000 0.00000 0.00000 0.00000 0.00000 (.000000 0.00000 0.00000 0.00000 0.00000 0.00000 (.000000 0.000000	0.00897 0.00897 0.00897 0.08027 0.08027 0.08027 0.00000 0.00000 0.06546 0.07625 0.07625 0.01080 0.07610 0.0000 0.00000 0.75112 0.75112 0.75112 0.00000 0.00000 0.00000 0.08339 0.08339 0.08339
P, PSIA 58.8 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 4.9501-4 5. M, MOL WT 28.433 CP, CAL/IGIIKI 0.6439	5.0000 F/A= 0.04000 4.0000 4.0000 4.0000 58.8 58.8 58.8 58.8 2700.0 2600.0 2500.0 4400.3 4040.3 1625-4 5.3841-4 5.6169-4 28.594 28.717 28.806 0.5775 0.5176 0.4669 1.1752 1.1857 1.1977 960.5 944.8 929.7	4.0000 4.0000 58.8 58.8 2400.0 2300.0 3860.3 3680.3	58.8 58.8 2200.0 2100.0 3500.3 3320.3 6.4116-4 6.7207-4 7.0 28.936 28.953 0.3731 0.3568	4,0000 4,0000 58.8 58.8 2000.0 1900.0 3140.3 2960.3 2960.3 28.963 28.968 0.3450 0.3362 1,2512 1,2580 847.6 828.3	4.0000 4.0000 4.0000 58.8 58.8 58.8 1800.0 1700.0 1600.0 2780.3 2600.3 2420.3 8459-4 8.3079-4 8.8274-4 28.971 28.973 28.974 0.3294 0.3237 0.3187 1.2639 1.2693 1.2745 808.0 786.9 765.0
C0 0.01702 0 C02 0.06175 0 H 0.00206 0 H02 0.00002 0 H20 0.06384 0 N0 0.02184 0 N0 0.02184 0 N0 0.72616 0 N2 0.72616 0 O 0.00733 0 OH 0.01476 0	0.00885 0.00889 0.00892 0.01194 0.00791 0.00494 0.06728 0.07165 0.07487 0.00102 0.00066 0.00035 0.00107 0.00120 0.00077 0.06700 0.06951 0.07145 0.01908 0.01648 0.01406 0.00002 0.00001 0.00001 0.73171 0.73619 0.73972 0.01710 0.0096 0.0068 0.017451 0.007525 0.07609	0.00893 0.00895 0.00291 0.00161 0.07707 0.07848 0.00017 0.00008 0.00001 0.00001 0.00047 0.0027 0.07292 0.07399 0.01183 0.00979 0.00001 0.00001 0.74245 0.74455 0.00120 0.00069 0.00499 0.00569 0.00499 0.007802	0.00084 0.00041 0 0.07933 0.07980 0 0.00003 0.00001 0 0.00001 0.00000 0 0.00015 0.00008 0 0.07477 0.07531 0 0.00795 0.00633 0 0.00001 0.00001 0 0.74615 0.74739 0 0.00038 0.00020 0 0.000243 0.00160 0	.00018 0.00008 .08006 0.08018 (.00000 .00000 0.00000 .00000 0.00000 .00004 0.00002 .07567 0.07591 .00491 0.00370 (.00001 .00001 0.00001 .74835 0.74910 .00009 0.00004 .00101 0.00061	0.00897 0.00897 0.00897 0.00003 0.00001 0.00000 0.08024 0.08026 0.08027 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.07606 0.07616 0.07621 0.00271 0.00190 0.0001 0.00001 0.00001 0.0001 0.74968 0.75013 0.75046 0.00024 0.00018 0.00000 0.00003 0.00001 0.00000 0.00034 0.00018 0.00009 0.0018194 0.008238 0.08272

CASE= 0 0/F= P, ATM 6.0000 P, PSIA 88.2 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 1.4125-3 M, MOL HT 28.977 CP, CAL/IGJ(K) 0.3184 GAMMA (S) 1.2746 SON VEL,M/SEC 740.7	6.0000 6.0000 6.0000 88.2 88.2 88.2 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3	PERCENT FUEL= 4.7619 6.0000 6.0000 6.0000 88.2 88.2 88.2 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 1.9262-3 2.1188-3 2.3542-3 28.977 28.977 0.2997 0.2943 0.2982 1.2968 1,3038 1,3122 639.8 611.6 582.1	28.977 28.977	6.0000 6.0000 6.0000 6.0000 88.2 88.2 88.2 88.2 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 3.5313-3 4.2376-3 5.2970-3 7.7539-3 28.977 28.977 28.977 31.813 0.2675 0.2608 0.2547 0.3932 1.3447 1.3568 1.3684 1.2304 481.2 411.2 396.3 310.6
MOLE FRACTIONS AR C02 0.09932 H201L1 0.00000 H20 0.09440 N0 0.0065 N2 0.74370 OH 0.00004 O2 0.05302	0.00888 0.00888 0.00998 0.09932 0.09932 0.09932 0.00000 0.00000 0.00000 0.09441 0.09441 0.09442 0.00039 0.00021 0.00011 0.74383 0.74392 0.74397 0.00001 0.00000 0.00000 0.05315 0.05324 0.05330	0.00888 0.00858 0.00898 0.09332 0.09932 0.09932 0.00000 0.60000 0.00000 0.09442 0.09442 0.09442 0.00005 0.00002 0.00001 0.74400 0.74402 0.74402 0.00000 0.00000 0.74002 0.00000 0.05333 0.05335	0.09932 0.09932 0.00000 0.00000 0.09442 0.09442 0.00000 0.00000 0.74403 0.74403 0.00000 0.00000	0.00888 0.00888 0.00888 0.09932 0.09932 0.09932 0.00000 0.00000 0.00000 0.09915 0.09442 0.09442 0.09442 0.00526 0.00000 0.00000 0.00000 0.00000 0.74403 0.74403 0.74403 0.74403 0.00000 0.00000 0.00000 0.00000 0.05335 0.05335 0.05335 0.05335
P, ATM 10.000 P, PSIA 147.0 T, DEG K 2800.0 T, DEG F 4580.3	10.000 10.000 10.000 147.0 147.0 147.0 2700.0 2600.0 2500.0 4400.3 4220.3 4040.3	PERCENT FUEL= 4.7619 10.000 10.000 147.0 147.0 147.0 2400.0 2300.0 2200.0 380.3 3680.3 3500.3 1,4669-3 1.5325-3 1.6034-3 28.889 28.924 28.946 0.4165 0.390c 0.3705 1,2134 1.2244 1.2342 915.5 899.7 883.1	147.0 147.0 2100.0 2000.0 3320.3 3140.3 1.6806-3 1.7651-3 28.959 28.967 0.3565 0.3464	10.000 10.000 10.000 10.000 147.0 147.0 147.0 147.0 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 18533-3 1,9617-3 2.0772-3 2.2070-3 28,972 28,974 28,976 28,976 0.3387 0.3327 0.3275 0.3228 1.2552 1.2604 1.2652 1.2699 827.3 806.9 785.6 763.5
MOLE :RACTIONS AR C0 0.01724 C02 0.08051 H 0.00131 H02 0.00002 H2 0.00359 N0 0.01775 N02 0.00002 N2 0.72338 O 0.00378 OH 0.01212 O2 0.04693	0.00181 0.00121 0.00077 0.08642 0.08864 0.09034 0.01536 0.01318 0.01119 0.00002 0.00001 0.00001 0.72809 0.73187 0.73481 0.00250 0.00161 0.00100 0.00950 0.00728 0.00545	0.00886 0.00887 0.00887 0.00288 0.00159 0.00083 0.09614 0.09755 0.09839 0.00011 0.00005 0.00002 0.00007 0.00027 0.00013 0.09161 0.09254 0.09319 0.0939 0.00776 0.00630 0.00001 0.00001 0.00001 0.73706 0.73877 0.74007 0.00060 0.00035 0.00019 0.00397 0.00281 0.0019 0.00397 0.00281 0.0019	0.00040 0.00018 0.09886 0.09911 0.00001 0.00000 0.00000 0.00000 0.00008 0.00004 0.09364 0.09394 0.00502 0.00390 0.00001 0.00001 0.74106 0.74183 0.00010 0.00005 0.00127 0.00080	0.00888

P, PSIA 220.4 2 T, DEG K 1500.0 14 T, DEG F 2240.3 20 RHO, G/CC 3.5316-3 3.78 M, MOL WT 28,979 28 CP, CAL/(G)(K) 0.3225 0. GAMMA (S) 1.2701 1.	5,000 15,000 15,000 220,4 220,4 220,4 400,0 1300,0 1200,0 060,3 1880,3 1700,3 839-3 4,0749-3 4,4145-3 4,8 8,979 28,979 28,979 3,182 0,3137 0,3089	220.4 220.4 2 1100.0 1000.0 9 1520.3 1340.3 11 .8158-3 5.2974-3 5.88 28.979 28.979 28 0.3038 0.2983 0. 1.2915 1.2985 1.	.000 15.000 15.000 20.4 220.4 220.4 00.0 800.0 700.0 60.3 980.3 800.3	15.000 15.000 15.000 220.4 220.4 220.4 600.0 500.0 400.0 620.3 440.3 260.3 8.8290-3 1.0595-2 1.3244-2 28.979 28.979 28.979 0.2706 0.2635 0.2571 1.3394 1.3517 1.3637 480.2 440.4 395.6	15.000 220.4 300.0 80.3 1.9845-2 32.568 0.3335 1.2436 308.6
CO2 0.11801 0.1 H20(L) 0.00000 0.1 NO 0.11223 0.1 NO 0.00043 0.0 N2 0.73685 0.7 OH 0.00003 0.0	11802 0.11802 0.11802 0 00000 0.00000 0.00000 0 11223 0.11224 0.11224 0 00026 0.00014 0.00007 0 73694 0.73700 0.73703 0 00001 0.00000 0.00000 0	0.11802 0.11802 0.1 0.00000 0.00000 0.0 0.11224 0.11224 0.1 0.00003 0.00001 0.0 0.73705 0.73706 0.7 0.00000 0.00000 0.0	0.00890 0.00880 0.00880 1802 0.11802 0.11802 00000 0.00000 0.00000 1224 0.11224 0.11224 00000 0.00000 0.00000 3707 0.73707 0.73707 00000 0.00000 0.00000 2388 0.02388 0.02388	0.11802 0.11802 0.11802 0.00000 0.00000 0.00000 0.11224 0.11224 0.11224 0.00000 0.00000 0.00000 0.73707 0.73707 0.73707 0.00000 0.00000 0.00000	0.00880 0.11802 0.11018 0.00206 0.00000 0.73707 0.00000 0.02388
P, PSIA 293.9 2 T, DEG K 2800.0 2 T, DEG F 4580.3 44 RHO, G/CC 2.4829-3 2.58 M, MOL WT 28.524 28 CP, CAL/(GI(K) 0.5972 0. GAMMA (S) 1.1720 1.	0,000 20,000 20,000 293.9 293.9 293.9 700.0 2600.0 2500.0 400.3 4220.3 4040.3 868-3 2.6960-3 2.8114-3 2.	293.9 293.9 2 2400.0 2300.0 2 3860.3 3680.3 35 .9340-3 3.0654-3 3.20 28.891 28.927 28 0.4201 0.3927 0. 1.2116 1.2227 1.	20.000 20.000 20.000 293.9 293.9 293.9 200.0 2100.0 2000.0 300.3 3320.3 3140.3	20.000 20.000 20.000 293.9 293.9 293.9 1900.0 1800.0 1700.0 296.0.3 2780.3 2600.3 371.9-3 3.9237-3 4.1547-3 4 28.975 28.977 28.978 0.3414 0.3358 0.3311 1.2526 1.2573 1.2615 826.4 805.8 784.4	20.000 293.9 1600.0 2420.3 1.4144-3 28.979 0.3267 1.2658 762.3
C0 0.02011 0.0 C02 0.09605 0.1 H 0.00102 0.0 H02 0.00002 0.0 H2 0.00312 0.0 H20 0.10206 0.1 N0 0.01280 0.0 N02 0.00001 0.0 N2 0.71908 0.7 0 0.00193 0.0 OH 0.00957 0.0	01429 0.00560 0.00607 0 10241 0.10752 0.111136 0 00059 0.00033 0.00017 0 000020 0.00001 0.00001 0 00220 0.00149 0.00037 0 10479 0.10693 0.10856 0 01080 0.00905 0.00755 0 00001 0.00001 0.00001 0 72345 0.72695 0.72966 0 00125 0.00078 0.0048 0 00739 0.00559 0.00414	0.00361 0.00201 0.0 0.11405 0.11579 0.1 0.00009 0.00004 0.0 0.00001 0.00001 0.0 0.10976 0.11061 0.1 0.00051 0.00051 0.0 0.73169 0.73316 0.7 0.00029 0.0016 0.0 0.00029 0.0011 0.0	0.00879 0.00880 0.00879 0.00081 0.00023 1685 0.11744 0.11775 0.0002 0.00001 0.00000 0.0000 0.00000 0.00000 1120 0.11160 0.11186 10416 0.00331 0.00257 10001 0.00001 0.00001 13422 0.73499 0.73556 10009 0.00005 0.00002 10144 0.00935 0.00062 10148 0.00935 0.00062 10149 0.00935 0.00062	0.00195 0.00142 0.00100 0.00001 0.00001 0.00000 0.73598 0.73630 0.73654	0.00880 0.00000 0.11801 0.00000 0.00000 0.00000 0.00000 0.11221 0.00067 0.00000 0.73672 0.00000 0.00005 0.00005

ADD H20(L) ADD C(S)

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0/F= 14.6540
                                         F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1.0000
       CASE=
P, ATM
                   30.000
                                                   30,000 30,000
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P. PSIA
                   440.9
                               440.9
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T. DEG K
                  1500.0
                              1400.0
                                         1300.0
                                                   1200.0
                                                              1100.0
                                                                                              800.0
980.3
                                                                                                         700.0
                                                                                    900.0
                                                                                                                    600.0
                                                                                                                              500.0
                                                                                                                                         400.0
                                                                                                                                                    300.0
T. DEG F
                                                   1700.3
                                                                        1340.3
                                                                                                                   620,3
                   2240.3
                              2060.3
                                         1880,3
                                                              1520.3
                                                                                   1160.3
                                                                                                         800.3
                                                                                                                               440.3
                                                                                                                                         260.3
                                                                                                                                                     80.3
RHO, G/CC
                 7.0635-3 7.5682-3 8.1504-3 8.8296-3 9.6323-3 1.0596-2 1.1773-2 1.3244-2 1.5136-2 1.7659-2 2.1191-2 2.7959-2 4.0395-2
                   28.980
M, MOL WT
                              28,981
                                         28,981
                                                   28,981
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                                                                                                                                        30,589
CP, CAL/(G)(K)
                   0.3257
                              0.3213
                                                   0.3122
                                                              0.3071
                                                                        0.3015
                                                                                             0.2880
                                                                                                        0.2806
                                        0,3169
                                                                                   0.2951
                                                                                                                  0.2731
                                                                                                                             0.2658
                                                                                                                                        1.0654
                                                                                                                                                  0.3180
GAMMA ISI
                   1.2668
                              1,2713
                                                   1.2815
                                                              1,2875
637,4
                                                                                              1.3124
                                                                                                                  1,3353
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                                         1,2761
                                                                        1.2944
                                                                                   1.3027
                                                                                                        1,3234
                                                                                                                             1.3477
                                                                                                                                                   1.2425
SON VEL, M/SEC
                                          689.9
                                                                         609.4
                                                                                               548.8
                                                                                                         515.5
                                                                                                                    479.4
                                                                                                                              439.7
                                                                                                                                         360.3
                               714.6
                                                    664.2
                                                                                    580.0
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MOLE FRACTIONS
AR
                  0.00873 0.00873
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              0.00003 0.00001
0.13313 0.13315
0.00001 0.00000
0.00000 0.00000
0.12666 0.12667
0.00001 0.00000
0.73141 0.73142
0.00001 0.00000
CO
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H20
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N2
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      CASE= 0 0/F= 14.6540
                                                           PERCENT FUEL= 6.3882
                                        F/A= 0.06824
                                                                                         PHI= 1.0000
                                                                        40.000
P. ATM
                  40,000
                              40.000
                                         40,000
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                                                             587.8
P. PSIA
                  587.8
                              587.8
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                                                                                                                                                   587.8
                   2800.0
                                                                        2300.0
T. DEG K
                              2700.0
                                         2600.0
                                                   2500.0
                                                             2400.0
                                                                                   2200.0
                                                                                             2100.0
                                                                                                        2000.0
                                                                                                                  1930.0
                                                                                                                             1800.0
                                                                                                                                        1700.0
                                                                                                                                                   1600.0
T. DEG F
                  4580.3
                              4400.3
                                        4220.3
                                                   4040.3
                                                              3860.3
                                                                        3680,3
                                                                                   3500,3
                                                                                             3320.3
                                                                                                                  2960.3
                                                                                                                             2780.3
                                                                                                        3140.3
                                                                                                                                        2600.3
                                                                                                                                                  2420.3
RHO, G/CC
                 4.9562-3 5,1620-3 5,3795-3
                                                5,6105-3 5,8571-3 6,1217-3 6,4076-3 6,7183-3 7,0581-3 7,4321-3 7,8467-3 8,3093-3 8,8291-3
M. MOL HT
                   28.468
                              28.591
                                         28,693
                                                   28.774
                                                              28.837
                                                                        28,884
                                                                                   28,918
                                                                                             28.942
                                                                                                        28,958
                                                                                                                  28,968
                                                                                                                             28,974
                                                                                                                                        28,978
                                                                                                                                                  28,980
                                                   0.4682
                                                                                                                             0.3417
CP, CAL/(G)(K)
                   0.5801
                              0.5401
                                         0.5024
                                                              0,4380
                                                                        0.4122
                                                                                   0.3909
                                                                                             0.3737
                                                                                                        0.3602
                                                                                                                  0.3497
                                                                                                                                        0,3354
                                                                                                                                                  0.3302
GAMMA ISI
                   1.1748
                              1,1809
                                                   1,1964
                                                              1,2054
                                                                        1,2147
                                                                                   1,2238
                                                                                              1.2324
                                                                                                                  1,2470
                                                                                                                             1,2528
                                                                                                                                        1,2579
                                         1.1882
                                                                                                        1,2402
                                                                                                                                                   1,2625
SON VEL, M/SEC
                   980.2
                               962.9
                                          946.1
                                                    929.7
                                                               913.3
                                                                         896.8
                                                                                    879.8
                                                                                              862.3
                                                                                                         843.9
                                                                                                                   824.6
                                                                                                                                         783.3
                                                                                                                              804.4
                                                                                                                                                   761.3
MOLE FRACTIONS
                 0.008E8 0.00861 0.00865
0.02582 0.01998 0.01500
0.10498 0.11139 0.11683
0.00083 0.00051 0.00001
0.00001 0.00001 0.00001
0.00418 0.00322 0.00243
AR
                                               0 0.01090 0.00766 0.00517 0.00336 0.00208 0.00122

0 1,12130 0.12484 0.12754 0.12951 0.13090 0.13183

0 0.00077 0.00009 0.00005 0.00002 0.00001 0.00000

0 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000

0 0.00180 0.00130 0.00091 0.00062 0.00041 0.00026

0 0.12268 0.12390 0.12480 0.12545 0.12591 0.12622

0 0.00323 0.00228 0.00155 0.00102 0.00064 0.00038

0 0.00000 0.00000 0.00000 0.00000 0.00000

0 0.72458 0.72655 0.72820 0.70000
                                                 0.00867 0.00869 0.00870 0.01090 0.00766 0.00517
                                                                                 0.00871
                                                                                            0.00872 0.00873
                                                                                                                 0.00873
                                                                                                                            0.00873
                                                                                                                                       0.00873
CO
                                                                                                                 0.00068
                                                                                                                                       0.00017
                                                                                                                            0.00035
C02
                                                                                                                0.13242 0.13278
0.00000 0.00000
                                                                                                                                      0.13298
                                                                                                                                                0.13308
H
                                                                                                                                                 0.00000
                                                                                                                 0.00000
                                                                                                                                      0.00000
H02
                                                                                                                           0.00000
H2
                                                                                                                 0.00015
                                                                                                                           0.00009
H20
                  0.11650 0.11904
                                      0,12108
                                                                                                                0.12641
                                                                                                                                       0.12661
                                                                                                                            0.12654
NO
                  0.00768 0.00592
                                      0.00443
                                                                                                                 0.00021
                                                                                                                            0.00011
                                                                                                                                       0.00006
                                                                                                                                                 0.00003
                  0.00001 0.00000
                                      0,00000
                                                                                                                 0.00000 0.00000
                                                                                                                                      0.00000
N02
                                                                                                                                                 0,00000
N2
                  0.71464 0.71863
                                       0.72193
                                                                                                                 0.73100 0.73120
                                                                                                                                      0.73132
                                                                                                                                                 0.73138
0
              0.00082 0.00048
0.00667 0.00491
                                       0.00027
                                                 0.00015
                                                            0.00007 0.00003
                                                                                0,00002
                                                                                            0.00001 0.00000
                                                                                                                 0.00000 0.00000
                                                                                                                                      0.00000
                                                                                                                                                 0.00000
OH
                                       0.00350
                                                 0.00242
                                                            0.00161 0.00104 0.00064
                                                                                            0.00037 0.00021
                                                                                                                 0.00011 0.00005
                                                                                                                                      0.00002
                  0.00927 0.00729
                                       0.00555
                                                  0.00410
                                                            0.00292 0.00200
                                                                                 0.00132
                                                                                            0.00083 0.00050
                                                                                                                 0.00028 0.00015
                                                                                                                                      0.00007
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ADD H20(L) ADD C(S)

P, PSIA 734.8 734.	0 500.0 400.0 300.0 400.3 440.3 260.3 80.3 253.16-2 4.8293-2 6.7593-2 6.28.979 31.702 33.279 0.2676 0.7606 0.3108 01.3453 1.1981 1.2440
MOLE FRACTIONS AR 0.00867 0.0087 <	00 0.00000 0.00403 0.00502 22 0.00246 0.00050 0.00000 14 0.00000 0.00000 0.00000 13 0.13389 0.13129 0.13065 19 0.00019 0.00001 0.00000 10 0.00000 0.08547 0.12848 10 0.12455 0.04273 0.00060 10 0.00000 0.00000 0.00000
CASE= 0 0/F= 12.5000 F/A= 0.08000 PERCENT FUEL= 7.4074 PHI= 1.1723 P, ATM 0.5000 0.500	7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3 7.3
MOLE FRACTIONS AR 0.00795 0.00807 0.00817 0.00825 0.00830 0.00833 0.00835 0.00835 0.00836 0.00836 0.00836 CO 0.08961 0.08970 0.07183 0.06402 0.05817 0.05452 0.05251 0.05135 0.05048 0.049 CO2 0.05251 0.06358 0.07422 0.08336 0.09014 0.09434 0.09652 0.09792 0.09885 0.099 HO 0.00017 0.00006 0.00030 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00136 0.01431 0.01431 0.01368 0.01317 0.012760 0.01431 0.01541 0.01431 0.01368 0.01317 0.012760 0.12783 0.12783 0.12783 0.12783 0.12784 0.126	33 0.04867 0.04755 0.04621 73 0.10069 0.10182 0.10316 74 0.00006 0.00003 0.00001 00 0.00000 0.00000 0.00000 10 0.01604 0.01717 0.01852 22 0.12605 0.12496 0.12363 02 0.00001 0.00000 0.0000 02 0.70008 0.70010 0.70011 01 0.00000 0.00000 0.00000 01 0.00003 0.00001 0.00000

ADD CISI ADD H201L1

CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC 2 M, MOL HT CP, CAL/IGIIK) GAMMA (SI SON VEL,M/SEC	0/F= 11.1111 1.0000 1.0000 14.7 14.7 1500.0 1400.0 2240.3 2060.3 2189-4 2.3774-4 27.311 27.311 0.3404 0.3385 1.2719 1.2738 762.1 736.8	F/A= 0.09000 1.0000 1.0000 14.7 14.7 1300.0 1200.0 1880.3 1700.3 2.5602-4 2.7736-4 27.311 27.311 0.3369 0.3356 1.2755 1.2768 710.5 683.0	1.0000 1.0000 14.7 14.7 1100.0 1000.0 1520.3 1340.3 3.0258-4 3.3284-4 27.311 27.312 0.3349 0.3353 1.2776 1.2774	.2569 PPI = 1.318 1.0000 14.7 14.7 900.0 800.0 1160.3 980.3 3.6993-4 4.1968-4 27.320 27.550 0.3467 0.5563 1.2712 1.2044 590.1 539.3	1.0000 1.000 14.7 14. 700.0 600. 800.3 620.	7 14.7 14.7 14.7 500.0 400.0 300.0 3 440.3 260.3 80.3 4 7.0573-4 8.8305-4 1.3590-3 1 28.955 28.984 33.456 0.2724 0.9735 2 1.3120 1.3371 1.1464
C1S1 CH4 C0 C02 H2 H2O(L) H2O	0.00806 0.00806 0.00000 0.00000 0.00000 0.00000 0.07611 0.07309 0.08601 0.08903 0.03946 0.04248 0.00000 0.00000 0.11484 0.11182 0.00000 0.00000 0.10000 0.00000 0.67552 0.67552	0.00806 0.00806 0.00000 0.00000 0.00000 0.00000 0.06942 0.06492 0.09270 0.09719 0.04615 0.05064 0.00000 0.00000 0.108+5 0.10265 0.00000 0.00000 0.67552 0.67552	0.00000 0.00000 0.00000 0.00001 0.05938 0.05251 0.10274 0.10960 0.05619 0.06303 0.00000 0.00000 0.07811 0.09125 0.00000 0.00001	0.00002 0.00005	0.00827 0.0083 0.01191 0.0236 0.01280 0.0147 0.00571 0.0004 0.13585 0.1279 0.03771 0.120 0.00000 0.0000 0.090486 0.1173 0.00006 0.0000 0.69293 0.6954	0 0.03428 0.04537 0.05766 0.00191 0.00655 0.00006 0.00001 0.00000 0.00000 2 0.11977 0.11232 0.10440 0 0.00208 0.00014 0.0000 0 0.00000 0.00000 0.12590 0 0.13205 0.14307 0.0283 0 0.00003 0.00001 0.00000
CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC I M, MOL WT CP, CAL/IGI(K) GAMMA (S) SON VEL,M/SEC	0/F= 11.1111 1.5000 1.5000 22.0 22.0 2800.0 2700.0 4580.3 4400.3 7438-4 1.8234-4 26.710 26.932 0.8284 0.6958 1.1537 1.1651 1002.8 985.5	F/A= 0.09000 1.5000 1.5000 22.0 22.0 2600.0 2500.0 4220.3 4040.3 1.9044-4 1.9877-4 27.086 27.184 0.5787 0.4896 1.1818 1.2017 971.2 958.6	1.5000 1.5000 22.0 22.0 22.0 2400.0 2300.0 3860.3 3680.3 2.0749-4 2.1677-4 27.241 27.274 0.4309 0.3953 1.2209 1.2362	.2569 PHI= 1.318 1.5000 1.5000 2200 2200.0 2100.0 3500.3 320.3 2.2677-4 2.3765-4 27.292 27.301 0.3746 0.3625 1.2470 1.2543 914.2 895.6	1,5000 1,500 22.0 22.1 2000.0 1900.1 3140.3 2960.	22.0 22.0 22.0 22.0 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 4 2,7735-4 2.9367-4 3.1203-4 9 27,310 27,311 27,311 5 0.3472 0.3446 0.3424 7 1.2654 1.2678 1.2699
CO CO2 H H2 H2O NO NO NO	0.00789 0.00795 0.10198 0.09720 0.05656 0.06267 0.01130 0.00762 0.02896 0.02732 0.11011 0.11676 0.00519 0.00349 0.65805 0.66445 0.00299 0.00149 0.01237 0.00854 0.00460 0.00260	0.00800 0.00803 0.09359 0.09116 0.06719 0.07019 0.00507 0.00331 0.02646 0.02629 0.12129 0.12398 0.00203 0.00111 0.66895 0.67182 0.00067 0.00027 0.00550 0.00331 0.00126 0.00052	0.08957 0.08841 0.07213 0.07348 0.00211 0.00130 0.02662 0.02725 0.12530 0.12570 0.00056 0.00026 0.67352 0.67447 0.00010 0.00003 0.00186 0.00099	0.00011 0.00004 0.67499 0.67526 0.00001 0.00000 0.00049 0.00023	0.00806 0.0080 0.08527 0.0839 0.07681 0.0781 0.03023 0.0315 0.12389 0.1226 0.00002 0.0000 0.67540 0.6754 0.00000 0.0000 0.00010 0.0000 0.00000 0.0000	8 0.08248 0.08071 0.07861 0.07963 0.08140 0.08350 1 0.00005 0.00002 0.00001 4 0.03306 0.03485 0.03695 7 0.12120 0.11944 0.11735 1 0.00000 0.00000 0.00000 7 0.67550 0.67551 0.67552 0 0.00000 0.00000 0.00000 4 0.00001 0.00000 0.00000

ADD CISI ADD H201L1

CASE= 0 0/F= P, ATM 2,0000 P, PSIA 29.4 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 4.3265-4 M, MOL WT 26.626 CP, CAL/IGIK1 0.3459 GAMMA IS1 1.2751 SON VEL,M/SEC 772.8	29.4 29.4 1400.0 1300.0 2060.3 1880.3 4.6355-4 4.9921-4 5 26.626 26.626 0.3444 0.3432 1.2767 1.2779	0000 PERCENT FUEL= 2.0000 2.0000 2.000 27.4 29.4 29. 1200.0 1100.0 10000. 1700.3 1520.3 1340. 4.082-4 5.8999-4 6.4912- 26.627 26.627 26.63 0.3425 0.3429 0.350 1.2786 1.2784 1.274 692.2 662.7 630.	4 29.4 29.4 29.4 900.0 800.0 700.0 3 1160.3 980.3 800.3 4 7.2432-4 8.4255-4 9.9139-4 2 26.746 27.655 28.473 3 0.4896 0.7754 0.4765 2 1.2236 1.1700 1.2217	2,0000 2,0000 2,0000 2,0000 29,4 29,4 29,4 29,4 600,0 500,0 400,0 300,0 620,3 440,3 260,3 80,3 1,1716-3 1,4119-3 1,7663-3 2,8233-3 28,842 28,964 28,987 34,751 0,3474 0,2944 0,2757 0,6313 1,2726 1,3105 1,3316 1,1605 469,2 433,7 390,9 288,6
MOLE FRACTIONS AR O.00779 C1S1 0.00000 CH4 0.00000 C0 0.10313 C02 0.07085 H2 0.05982 H201L1 0.00000 H20 0.10581 NH3 0.00000 N2 0.65260	0.00000 0.00000 0.00000 0.00000 0.0959 0.09531 0.07439 0.07868 0.06336 0.06764 0.00000 0.00000 0.10226 0.09758 0.00000 0.00000	0.00779 0.00779 0.0077 0.00000 0.00000 0.6000 0.00000 0.00001 0.0001 0.09008 0.08366 0.0758 0.08390 0.09032 0.0983 0.07286 0.07926 0.0865 0.00000 0.00000 0.0000 0.09276 0.08634 0.0788 0.00001 0.00001 0.0000 0.00001 0.00001 0.0000 0.65260 0.65261 0.6527	0 0.00000 0.01355 0.03253 0 0.00222 0.01223 0.01723 9 0.06269 0.02497 0.00385 3 0.10986 0.12750 0.12638 7 0.09205 0.06582 0.03061 0 0.00000 0.00000 0.00000 0 0.06981 0.07928 0.10614 2 0.00006 0.00008 0.00009	0.00808 0.00802 0.00792 0.00779 0.04313 0.05405 0.06649 0.08145 0.01822 0.01448 0.00812 0.00002 0.00031 0.00001 0.00000 0.00000 0.11867 0.11049 0.10220 0.09253 0.00935 0.00160 0.00011 0.00000 0.00000 0.00000 0.00000 0.15232 0.12578 0.13982 0.15195 0.01328 0.00007 0.00004 0.00001 0.00000 0.67639 0.67150 0.66320 0.65262
CASE= 0 0/F= P, ATM 3.0000 P, PSIA 44.1 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 3.4349-4 M, MOL HT 26.307 CP, CAL/IGIIK1 0.6292 GAMMA ISI 1.1801 SON VEL,M/SEC 1021.9	244.1 244.1 2700.0 2600.0 4400.3 4220.3 3.5781-4 3.7267-4 3 26.425 26.503 0.5400 0.4750 1.1958 1.2123	3.0000 3.0000 3.000 44.1 44.1 44. 2500.0 2400.0 2300. 4040.3 3860.3 3680.	1 44.1 44.1 2000.0 2000.0 3 3500.3 3320.3 3140.3 44.4226-4 4.6343-4 4.8667-4 2 26.613 26.619 26.623 2 0.3712 0.3635 0.3583 9 1.2557 1.2607 1.2643	3.0000 3.0000 3.0000 3.0000 14.1 44.1 44.1 1900.0 1800.0 1700.0 1600.0 2960.3 2780.3 2600.3 2420.3 5.1232-4 5.4080-4 5.7262-4 6.0841-4 26.625 26.626 26.626 0.3546 0.3519 0.3496 0.3477 1.2672 1.2695 1.2715 1.2734 867.1 844.7 821.6 797.6
MOLE FRACTIONS AR 0.00770 CO 0.12361 CO2 0.04828 H 0.00964 H2 0.04217 H20 0.11293 NO 0.00256	0.12181 0.12048 0.05086 0.05269 0.00669 0.00454 0.04210 0.04248	0,00777 0,00778 0,0077 0,11944 0,11851 0,1179 0,05406 0,05520 0,0562 0,00300 0,00192 0,0011 0,04316 0,04403 0,0450 0,11963 0,11988 0,1196	7 0.11654 0.11538 0.11405 6 0.05735 0.05855 0.05991 8 0.00069 0.00039 0.00021 4 0.04616 0.04741 0.04881	0.00779 0.00779 0.00779 0.00779 0.11250 0.11070 0.10858 0.10609 0.06147 0.06328 0.06540 0.06789 0.00010 0.00005 0.00002 0.00001 0.05040 0.05223 0.05436 0.05686 0.11515 0.11336 0.11125 0.10877

AR 1.000000 0 C 1.000000 0 2 N 2.000000 0	.906699 0.0000 .000000 0.0000 .00000 0.0000 .00000 0.0000 .00000 0.0000	00 0.000000 00 0.00000 00 0.00000	0.000000 100.0000 0.000000 0.0128 0.000000 0.7552 0.000000 0.2314	35800 15600 25296	0.00 G 0.00 G 0.00 G	88.150 F 0.000 0 0.000 0 0.000 0 0.000 0	0.80700 0.00000 0.00000 0.00000 0.00000	
CASE= 0 P. ATM P. PSIA T. DEG K T. DEG F HHO, G/CC 6 M. MOL WT CP. CAL/(G)(K) GAMMA (S) SON VEL.M/SEC	0/F=100.0000 0.5000 0.5000 7.3 7.3 2800.0 2700.0 4580.3 4400.3 1517-5 6.4264-5 28.268 28.476 0.7036 0.6209 1.1640 1.1723 979.1 961.4	F/A= 0.01000 0.5000 0.5000 7.3 7.3 2600.0 2500.0 4220.3 4040.3 6.7106-5 7.0071-5 28.634 28.749 0.5473 0.4854 1.1832 1.1962 945.1 930.0		0.5000 3.7.3 0.2200.0 3.500.3 3.60095-5 4.28.918 0.03700 0.12398	2100.0 2000 3320.3 3140	7.3 1.0 1900.0 1.3 2960.3 1-5 9.2873-5 952 28.959 951 0.3244 1.5 1.2704	0.5000 0.500 7.3 7.7 1800.0 1700 2780.3 2600 9.8046-5 1.0382 28.963 28.96 0.3163 0.30° 1.2781 1.28 812.7 791	.3 7.3 .0 1600.0 .3 2420.3 -4 1.1031-4 65 28.966 99 0.3044 49 1.2912
CO CO2 H H02 H20 NO NO2 M2 O	0.00901 0.00907 0.00729 0.00535 0.01309 0.01518 0.00338 0.00206 0.00001 0.00001 0.00006 0.00066 0.1061 0.01251 0.03085 0.02747 0.00001 0.00001 0.73915 0.74637 0.02904 0.01975 0.01197 0.01016 0.14472 0.15138	0.00913 0.00916 0.00367 0.00236 0.01697 0.01837 0.00118 0.00064 0.00061 0.00001 0.00048 0.00033 0.01419 0.01559 0.02405 0.02070 0.00001 0.00001 0.75230 0.75706 0.01296 0.00818 0.00827 0.006147 0.15678 0.16113	0.01937 0.02002 0.00032 0.00015 0.00001 0.00000 0.00021 0.00015 0.01750 0.01450 0.00001 0.0000 0.76081 0.76374 0.00495 0.00285 0.00496 0.00352	0.00042 0 0.02043 0 0.00007 0 0.00000 0 0.00007 0 0.00007 0 0.01826 0 2.001181 0 0.00001 0 4.0.76602 0 5.000157 0 0.000244 0	0.00922 0.006 0.00020 0.000 0.02066 0.020 0.00000 0.000 0.00000 0.000 0.00004 0.000 0.01874 0.019 0.00939 0.000 1.00010 0.000 0.00010 0.000 0.00010 0.000 0.00013 0.000 0.00163 0.000	0.00004 178 0.02084 0.00000 0.00000 0.00000 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001	0.00923 0.009 0.00001 0.000 0.02086 0.020 0.0000 0.000 0.0000 0.000 0.0000 0.000 0.01944 0.019 0.00401 0.002 0.0001 0.000 0.77112 0.771 0.00007 0.000 0.17489 0.1759	00 0.00000 88 0.02088 00 0.00000 00 0.00000 00 0.00000 53 0.01958 81 0.00189 01 0.00000 77 0.77226 19 0.00001

P, ATM 1./ P, PSIA 1./ T, DEG K 15 T, DEG F 22 RHO, G/CC 2.35 M, MOL WT 28 CP, CAL/(IGI(K) 0. GAMMA (S) 1.	0/F= 50.0000 0000 1.0000 14.7 14.7 00.0 1400.0 440.3 2060.3 36-4 2.5217-4 1.969 28.969 3046 0.3000 2908 1.2965 45.5 721.8	F /A= 0.02000 1.0000 1.0000 14.7 14.7 1300.0 1200.0 1880.3 1700.3 2.7157-4 2.9420-4 28.969 28.970 0.2955 0.2911 1.3023 1.3083 697.1 671.3	1100.0 1000 1520.3 1340	1.0000 1.7 14.7 1.0 900.0 1.3 1160.3 1.4 3.9227-4 1.69 28.969 1.18 0.2764 1.18 1.3302	HI= 0.2931 1.0000	1.0000 1.0000 14.7 14.7 600.0 500.0 620.3 440.3 5.8840-4 7.0609-4 28.970 28.970 0.2579 0.2522 1.3623 1.373 484.3 444.0	1.0000 1.0000 14.7 14.7 400.0 300.0 260.3 80.3 8.8261-4 1.1820-3 28.970 29.096 0.2474 1.0066 1.3837 1.1695 398.6 316.6
CO2 0.0 H20(L) 0.0 H20 0.0 NO 0.0 N2 0.7 OH 0.0	00914 0.00914 44106 0.04106 00000 0.00000 3884 0.03886 00108 0.0665 6516 0.76539 00005 0.00002 4465 0.14488	0.00914 0.00914 0.04106 0.04166 0.00000 0.00000 0.03886 0.0387 0.00036 0.00018 0.75554 0.75563 0.00001 0.76563 0.00001 0.00000 0.14503 0.14512	0.00914 0.009 0.04106 0.0410 0.00000 0.600 0.03887 0.038 0.00008 0.000 0.76568 0.765 0.00000 0.000 0.14517 0.145	006 0.04106 000 0.00000 887 0.03887 003 0.00001 570 0.76571	0.00914 0.00914 0.04106 0.04106 0.00000 0.00000 0.03387 0.03887 0.00000 0.76571 0.00000 0.00000 0.14521 0.14521	0.00914 0.00914 0.04106 0.04106 0.00000 0.00000 0.03887 0.03887 0.00000 0.00000 0.75572 0.76572 0.00000 0.00000 0.14521 0.14521	0.00914 0.00914 0.04106 0.04106 0.00000 0.00436 0.03887 0.03451 0.00000 0.00000 0.76572 0.76572 0.00000 0.00000 0.14521 0.14521
P, ATM P, PSIA T, DEG k T, DEG K T, DEG C F, OFCC M, MOL NT CP, CAL/IGIIKI O, GAMMA (5) 1.	0/F= 50.0000 5000 1.5000 22.0 22.0 2700.0 800.0 2700.0 800.3 4400.3 82.4 1.9350-4 8.416 28.581 6394 0.5710 1697 1.1784 178.9 962.1	F/A= 0.02000 1.5000 1.5000 22.0 22.0 2600.0 2500.0 4220.3 4040.3 2.0182-4 2.1056-4 28.706 28.797 0.5106 0.4602 1.1893 1.2017 946.4 931.3	2400.0 2300 3860.3 3680	1.5000 2.0 22.0 0.0 2200.0 0.3 3500.3 1-4 2.4038-4 302 28.930 193 0.3664 275 1.2393	HI= 0.2931 1.5000 1.5000 22.0 22.0 2100.0 2000.0 3320.3 3140.3 25.197-4 2.6467-4 28.947 28.957 0.3497 0.3373 1.2497 1.2586 868.2 850.2	1.5000 1.5000 22.0 22.0 1900.0 1800.0 2960.3 2780.3 278.5-4 2.9417-4 28.963 28.966 0.3279 0.3206 1.2664 1.2732 831.1 811.1	1.5000 1.5000 22.0 22.0 1700.0 1600.0 2600.3 2420.3 3.1149-4 3.3097-4 28.968 28.969 0.3146 0.3093 1.2794 1.2852 790.1 768.2
CO	00897 0.00902 01040 0.00736 0252 0.00148 00002 0.00002 00144 0.00103 02829 0.03077 028245 0.02512 00002 0.00002 3685 0.74288 11549 0.01045 21427 0.01159 2342 0.12712	0.00306 0.00308 0.00490 0.00308 0.03579 0.03774 0.00083 0.00004 0.00070 0.00016 0.03283 0.03447 0.02186 0.01874 0.00022 0.00001 0.74781 0.75177 0.00682 0.00429 0.00912 0.00696 0.13025 0.13295	0.00911 0.009 0.00182 0.001 0.03909 0.030 0.00022 0.000 0.00001 0.000 0.000575 0.037 0.01580 0.01 0.075491 0.755 0.00259 0.001 0.000514 0.000 0.13527 0.135	101 0.00053 196 0.04048 101 0.00001 101 0.00001 1017 0.00009 772 0.03743 1009 0.01064 101 0.00001 138 0.75933 149 0.00082 149 0.00253	0.00913 0.00914 0.00026 0.00012 0.04077 0.04093 0.00002 0.00001 0.00000 0.00000 0.00005 0.00002 0.03794 0.03829 0.00846 0.00656 0.00001 0.00001 0.76088 0.76210 0.009167 0.00106 0.00167 0.00106 0.14038 0.14156	0.00914 0.00914 0.00005 0.00002 0.04101 0.04104 0.00000 0.00000 0.00000 0.00000 0.03853 0.03868 0.00495 0.03361 0.76306 0.76382 0.00001 0.00001 0.76306 0.00001 0.00004 0.00036 0.14252 0.14328	0.00914 0.00914 0.00001 0.00000 0.04106 0.04106 0.00000 0.00000 0.00000 0.00000 0.03877 0.03882 0.0254 0.00170 0.76440 0.76484 0.00001 0.00001 0.00001 0.00000 0.00019 0.00009 0.14388 0.14433

ADD H201L1														
CASE = 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL//(G)/(K) GAMMA (S) SON VEL,M/SEC	2.0000 29.4 1500.0 2240.3	33.3333 2.0000 29.4 1400.0 2060.3 5.0439-4 28.972 0.3048 1.2904 720.0	F/A= 0. 2.0000 29.4 1300.0 4880.3 5.4319-4 28.972 0.3003 1.2960 695.4	2.0000 29.4 1200.0 1700.3	PERCENT F 2.0000 29.4 1100.0 1520.3 6.4195.4 28.972 0.2910 1.3084 642.7	2.0000 29.4 1000.0 1340.3	2.0000 29.4 900.0 1160.3	PHI= 0.43' 2.0000 29.4 800.0 980.3 8.8268-4 28.972 0.2742 1.3336 553.3	96 2.0000 29.4 700.0 800.3 1.0088-3 28.972 0.2677 1.3445 519.7	2.0000 29.4 600.0 620.3 1.1769-3 28.972 0.2612 1.3561 483.2	2.0000 29.4 500.0 440.3 1.4123-3 28.972 0.2551 1.3678 443.0	2.0000 29.4 400.0 260.3 1.7654-3 28.972 0.2499 1.3784 397.8	2.0000 29.4 300.0 80.3 2.4548-3 30.214 0.6202 1.1969 314.3	
MOLE FRACTIONS AR C02 H201L1 H20 N0 N02 N2 OH	0.00905 0.06086 0.00000 0.05772 0.00095 0.00001 0.75786 0.00004 0.11351	0.00905 0.06086 0.00000 0.05773 0.00057 0.00000 0.75806 0.00002 0.11371	0.00905 0.06086 0.00000 0.05774 0.00031 0.09000 0.75819 0.00001 0.11364	0.00905 0.06086 0.00000 0.05774 0.00016 0.00000 0.75827 0.00000 0.11392	0.00905 0.06086 0.00000 0.05774 0.00007 0.00000 0.75831 0.00000 0.11397	0.00905 0.06086 0.00000 0.05774 0.00003 0.00000 0.75833 0.00000 0.11399	0.00995 0.06086 0.00000 0.05774 0.00001 0.75834 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.00000 0.05774 0.00000 0.75835 0.00000 0.11400	0.00905 0.06086 0.04112 0.01662 0.00000 0.00000 0.75835 0.00000 0.11400	
CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/IG)(K) GAMMA (S) SON VEL,M/SEC	3.0000 44.1 2800.0 4580.3	33.333 3.0000 44.1 2700.0 4400.3 3.8750-4 28.618 0.5576 1.1795 961.9	F/A= 0. 3.0000 44.1 2600.0 4220.3 4.0401-4 28.732 0.5014 1.1902 946.3	3.0000 44.1 2500.0 4040.3	PERCENT F 3.0000 44.1 2400.0 3860.3 4.3982-4 28.872 0.4171 1.2147 916.3	FUEL = 2 3.0000 44.1 2300.0 3680.3 4.5956.3 4.595911 0.3887 1.2267 900.8	3.0000 44.1 2200.0 3500.3	PHI= 0.43' 3.0000 44.1 2100.0 3320.3 5.0402-4 28.951 0.3520 1.2470 867.2		3.0000 44.1 1900.0 29.0.3 5.5736-4 28.966 0.3318 1.2622 829.7	3.0000 44.1 1800.0 2780.3 5.8839-4 28.969 0.3249 1.2685 809.5	3.0000 44.1 1700.0 2600.3 6.2304-4 28.971 0.3192 1.2742 788.5	3,0000 44.1 1600.0 2420.3 6,6200-4 28,971 0,3140 1,2797 766.5	
MOLE FRACTIONS	0.00890	0.00894	0.00898	0.00900	0.00902	0.00903	0.00904	0.00905	0.00905	0.00905	0.00905	0.00905	0.00905	

02	0.11351	0.113/1	0.11364	0.11392	0.11397	0.11377	0.11400	0.11400	0.11400	0.11400	0.11400	0.11400	0.11400
CASE= (0/F=	33.3333	F/A= 0.	03000	PERCENT F	UEL= 2.	.9126 F	HI= 0.439	6				
P, ATM	3.0000	3.0000	3.0000	3.0000	3.0000	3,0000	3.0000	3,0000	3,0000	3.0000	3,0000	3,0000	3,0000
P, PSIA	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1
T, DEG K	2800.0	2700.0	2600.0	2500.0	2400.0	2300.0	2200.0	2100.0	2000.0	1900.0	1800.0	1700.0	1600.0
T, DEG F	4580.3	4400.3	4220.3	4040.3	3860.3	3680.3	3500.3	3320.3	3140.3	0.3د29	2780.3	2600.3	2420.3
RHO, G/CC	3.7170-4	3.8750-4	4.0401-4	4.2139-4	4.3982-4	4.5956-4	4.8086-4	5.0402-4	5.2940-4	5.5736-4	5.8839-4	6,2304-4 6	5.6200-4
M, MOL HT	28,467	28.618	28.732	28.815	28,872	28.911	28,936	28,951	28,960	28,966	28.969	28,971	28,971
CP, CAL/IGITKI	0.6213	0.5576	0.5014	0.4544	0.4171	0.3887	0.3675	0.3520	0.3406	0.3318	0.3249	0.3192	0,3140
GAMMA (S)	1.1708	1.1795	1,1902	1.2023	1,2147	1,2267	1.2376	1.2470	1.2552	1,2622	1,2685	1,2742	1,2797
SON VEL, M/SEC	978.5	961.9	946.3	931.3	916.3	900.8	884.5	867.2	849.0	829.7	809.5	788.5	766.5
MOLE FRACTIONS													
AR	0.00890	0.00894	0.00898	0.00900	0.00902	0.00903	0.00904	0.00905	0.00905	0.00905	0.00905	0.00905	0.00905
co	0.01291	0.00901	0.00594	0.00370	0.00217	0.00120	0.00063	0.00030	0.00014	0.00006	0.00002	0.00001	0.00000
C02	0.04689	0,05111	0.05441	0.05683	0.05847	0.05952	0.06015	0.06051	0.06070	0.06079	0.06083	0.06085	0.06085
H	0.00203	0.00118	0.00065	0.00034	0.00017	0.00008	0.00003	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000
H02	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
H2	0.00187	0.00131	0.00088	0.00057	0.00035	0.00020	0.00011	0,00006	0.00003	0.00001	0.00001	0.00000	0.00000
H20	0.04656	0.04930	0.05152	0.05326	0,05459	0.05558	0.05631	0.05682	0.05717	0.05741	0.05755	0.05764	0.05769
М0	0.02536	0.02228	0.01932	0.01653	0.01392	0.01153	0.00937	0.00745	0.00578	0.00436	0.00318	0.00224	0.00150
N02	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	10000,0	0.00001	0.00001	0.00001	0.00001
N2	0.73244	0.73792	0.74239	0.74596	0.74877	0,75097	0.75270	0,75407	0.75515	0.75600	0.75667	0.75719	0.75758
0	0.00979	0.00658	0.00428	0.00269	0.00162	0.00093	0.00051	0.00026	0.00013	0.00006	0.00002	0.00001	0.00000
ОН	0.01456	0.01164	0.00905	0.00685	0.00503	0.00357	0.00245	0.00162	0.00102	0.00061	0.00035	0.00018	0.00009
02	0.09866	0.10069	0.10254	0.10426	0.10586	0.10734	0.10867	0.10983	0.1:082	0.11164	0.11230	0.11282	0.11322

NOD NEGICE							
P, PSIA T, DEG K 1, DEG F 2: RHO, G/CC 9.4 M, MOL WT 2f CP, CAL/(G)(K) 0 GAMMA (S) 1	0/F= 25.0000 .0000	F/A= 0.04000 4.0000 4.0000 58.8 58.8 1300.0 1200.0 1880.3 1.770-3 28.974 28.974 0.3049 0.3002 1.2902 1.2961 693.8 668.1	PERCENT FUEL= 4.0000 4.58.8 58.8 1100.0 1000. 1520.3 1340. 1.2840-3 1.4124 28.974 28.97 0.2954 0.290 1.3024 1.309 641.2 613.	58.8 58.8 900.0 800.0 3 1160.3 980.3 3 1.5693-3 1.7655-3 4 28.974 28.974 20 0.2843 0.2779 5 1.3179 1.3276	4,0000 4,0000 58.8 58.8 700.0 600.0 800.3 620.3 2,0177-3 2,3540-3 28,974 28,974	500.0 400 440.3 260 2.8248-3 3.5310 28.974 28.9 0.2580 0.25 1.3622 1.37	.8 58.8 .0 300.0 .3 80.3 -3 5.0525-3 74 31.094 23 0.4448 33 1.2234
CO2 0.4 H2O1L1 0.4 NO 0.4 NO2 0.4 N2 0.4 N2 0.4	00897 0.00897 08027 0.08027 00000 0.00000 07623 0.07624 00081 0.00048 00001 0.00000 75070 0.75087 00004 0.00002 08297 0.08314	0.00897 0.00P97 0.08027 0.08027 0.00000 0.00000 0.07625 0.00625 0.00027 0.00013 0.00000 0.00000 0.75098 0.75105 0.00001 0.00000 0.08325 0.08332	0.00897 0.0089 0.08027 0.0802 0.00000 0.0000 0.07625 0.0762 0.00000 0.0000 0.00000 0.0000 0.75109 0.7511 0.00000 0.0000 0.08336 0.0833	7 0.08027 0.08027 0.00000 0.00000 5 0.07625 0.07625 2 0.00001 0.00000 0 0.00000 0.00000 0 0.75112 0.75112 0 0.00000 0.00000	0.08027 0.08027 0.00000 0.00000 0.07625 0.07625 0.00000 0.00000 0.75112 0.75112 0.00000 0.00000	0.08027 0.080 0.00000 0.000 0.07625 0.076 0.00000 0.000 0.75112 0.751 0.00000 0.000	27 0.08027 00 0.06818 25 0.00807 00 0.00000 00 0.00000 12 0.75112 00 0.00000
P, PSIA T, DEG K 21 T, DEG F 41 RHO, G/CC T, 44 M, MOL HT 21 CP, CAL/(G K) GAMMA (S) 1	0/F= 25.0000 .0000 6.0000 88.2 88.2 800.0 2700.0 580.3 4400.3 466-4 7.7597-4 8.515 28.653 .6028 0.5439 .1724 1.1811 978.3 962.0	F/A= 0.04000 6.0000 6.0000 88.2 88.2 2600.0 2500.0 4220.3 4040.3 8.0874-4 8.4330-4 28.757 28.833 0.4917 0.4481 1.1917 1.2033 946.5 931.4	6.0000 6.000 88.2 88. 2400.0 2300. 3860.3 3680.	2 88.2 88.2 2 200.0 2100.0 3 3500.3 3320.3 4 9.6193-4 1.0082-3 0 28.942 28.956 4 0.3680 0.3538 4 1.2363 1.2449	6.0000 6.0000 88.2 88.2 2000.0 1900.0 3140.3 29.0.3 1.0589-3 1.1149-3 28.964 28.969 0.3433 0.3353	88.2 88 1800.0 1700 2780.3 2600 1.1769-3 1.2462 28.972 28.97 0.3289 0.32 1.2643 1.26	.2 88.2 .0 1600.0 .3 2420.3 -3 1.3241-3 73 28.974 34 0.3185 95 1.2746
CO 0.00000000000000000000000000000000000	00883 0.00887 01454 0.01006 06446 0.06932 00154 0.00089 00003 0.00002 00215 0.00149 06537 0.06813 02182 0.01907 00002 0.00002 72830 0.73324 00597 0.00399 01348 0.01066 07349 0.07423	0.00890 0.00892 0.00659 0.00408 0.07308 0.07580 0.00049 0.00026 0.00049 0.00063 0.07302 0.00063 0.07032 0.07202 0.01647 0.01406 0.00002 0.00002 0.73724 0.74040 0.00259 0.00162 0.00823 0.00619 0.07506 0.07599	0.00894 0.0089 0.00239 0.0013 0.07763 0.0788 0.00013 0.0000 0.00001 0.0000 0.00039 0.0002 0.07330 0.0742 0.01183 0.0097 0.00002 0.0000 0.74287 0.7446 0.00452 0.0013 0.00452 0.0013 0.076699 0.0780	2 0.00069 0.00033 6 0.00950 0.07986 6 0.00003 0.00001 1 0.00001 0.00001 2 0.00012 0.00006 5 0.07493 0.07541 9 0.00795 0.00633 2 0.00001 0.00001 0 0.74629 0.74747 6 0.00031 0.00011 1 0.00220 0.00145	0.00015 0.00006 0.08029 0.00000 0.00000 0.00000 0.00000 0.00000 0.00003 0.00001 0.07573 0.07595 0.00491 0.00370 0.00001 0.00001 0.74839 0.74912 0.00008 0.00003 0.00091 0.00055	0.00002 0.000 0.08024 0.000 0.00000 0.000 0.00000 0.000 0.00001 0.000 0.07608 0.076 0.00271 0.001 0.00001 0.000 0.74969 0.750 0.00001 0.000 0.00001 0.000	01 0.00000 26 0.98027 00 0.90000 00 0.00000 01 0.00000 16 0.07621 90 0.00128 01 0.00001 13 0.75046 01 0.00008

P, ATM 10,000 P, PSIA 147.0 T, DEG K 1500.0 T, DEG F 2240.3	147.0 147.0 147.0 147.0 147.0 147.0 147.0 1400.0 1300.0 1200.0 200	147.0 147.0 147.0 147.0 147.0 147.0 100.0 900 900 900 900 900 900 900 900 900	.0 147.0 147.0 147.0 .0 800.0 700.0 600.0 .3 980.3 800.3 620.3 -3 4.4141-3 5.0447-3 5.8855-3 77 28.977 28.977 28.97 82 0.2816 0.2746 0.267 22 1.3220 1.3329 1.344	0 147.0 147.0 147.0 500.0 400.0 300.0 8 440.3 260.3 80.3 8 7.0627-3 8.8283-3 1.2953-2 7 28.977 28.977 31.887 7 0.2608 0.2547 0.3486 7 1.3568 1.3684 1.2467
MOLE FRACTIONS AR 0.00888 C02 0.09932 H201L1 0.00000 H20 0.90440 N0 0.00065 N02 0.74370 OH 0.00003 O2 0.05302	2 0.09932 0.09932 0.09932 0 0.00000 0.00000 0.00000 0 0.09441 0.09441 0.09442 0 0.00039 0.00021 0.00011 0 0.00000 0.00000 0.00000 0 0.74383 0.74392 0.74393 0 0.00001 0.00000 0.00000	0.09932 0.09932 0.099 0.00000 0.00000 0.000 0.09442 0.09442 0.099 0.00005 0.00002 0.000 0.00000 0.00000 0.000 0.74400 0.74402 0.744 0.00000 0.00000 0.000	32 0 39932 0.09932 0.09932 0.09932 0.09030 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.74403 0.74403 0.74403 0.74403 0.00000 0.00000 0.000000 0.00000	2 0.09932 0.09932 0.09932 0 0.00000 0.00000 0.09127 2 0.09442 0.09442 0.00315 0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000 0 0.74403 0.74403 0 0.00000 0.00000 0.00000
P, ATM 15,000 P, PSIA 220,4 T, DEG K 2800,0 T, DEG F 4580,3	1 220.4 220.4 220.6 2700.0 2600.0 2500.0 3 4400.3 4220.3 4040.3 3 1.9435-3 2.0244-3 2.1101-3 8 28.705 28.794 28.895 20.5189 0.4735 0.4356 3 1.1855 1.1957 1.2067	220.4 220.4 220 2400.0 2300.0 2200 3 3860.3 3680.3 3500 3 2.2014-3 2.2994-3 2.4055 3 28.902 28.932 28.9 2 0.365 4 1.2176 1.2277 1.23	.4 220.4 220.4 220.4 .0 2100.0 2000.0 1900.0 .3 3320.3 3140.3 29.0.3 .3 2.5211-3 2.6477-3 2.7875-3 50 28.962 28.969 28.973 .62 0.3540 0.3449 0.3386 .65 1.2439 1.2503 1.255	1 220.4 220.4 220.4 1800.0 1700.0 1600.0 3 2780.3 2600.3 2420.3 3 2,9425-3 3,1158-3 3,3106-3 3 28,975 28,976 28,976 28,975 28,976 0,3228 7 1,2607 1,2654 1,2700
MOLE FRACTIONS AR CO 0.00465 CO2 0.08331 H 0.00096 H02 0.00001 H2 0.00001 H2 0.0001 N0 0.01765 N02 0.00002 N2 0.7252 O 0.00306 OH 0.01097 O2 0.04888	8 0.01009 0.00657 0.00406 1 0.00830 0.09212 0.09486 3 0.00057 0.00031 0.00016 3 0.00015 0.00002 0.00031 0 0.00151 0.00100 0.00065 0 0.08743 0.08936 0.09087 0 0.00002 0.00002 0.00002 0 0.00002 0.00002 0.00002 0 0.00002 0.00002 0.73276 0 0.72940 0.73276 0.7353 0 0.00203 0.00131 0.00085 0 0.00861 0.00660 0.00497	0.00237 0.00131 0.00C 0.00670 0.09786 0.098 0.00008 0.00004 0.00C 0.00001 0.00001 0.00C 0.00039 0.00022 0.00C 0.0038 0.0075 0.006 0.0038 0.0075 0.00C 0.00002 0.00001 0.00C 0.073742 0.73898 0.744 0.00049 0.0028 0.00C	168 0.00033 0.00015 0.00001 155 0.09894 0.09915 0.09921 102 0.00001 0.00000 0.00001 101 0.00001 0.00000 0.00001 112 0.00006 0.00003 0.0000 133 0.09373 0.09399 0.0941 130 0.00502 0.00390 0.0029 101 0.00001 0.00001 0.00001 109 0.74113 0.74186 0.7424 116 0.00008 0.00004 0.00001 174 0.00115 0.00072 0.0004	5 0.0002 0.00001 0.00000 5 0.09929 0.09931 0.09932 0 0.00000 0.00000 0.00000 0 0.00000 0.00000 0.00000 7 0.09428 0.09435 0.09438 4 0.00215 0.00151 0.00102 10 0.00001 0.00001 0.00001 10 0.00001 0.00001 0.00001 20 0.74289 0.74324 0.74351 20 0.00011 0.00000 0.00000 3 0.00025 0.00013 0.00006
32 3,04676	0,047,00 0,0402	0.030		0,0322, 0,0320

P, PSIA 293.9 2 T, DEG K 1500.0 14 T, DEG F 2240.3 20 RHO, G/CC 4.7088-3 5.04 M, MOL WT 28.979 28 CP, CAL/(GI(K) 0.3225 0.3225 0. GAMMA (S) 1.2701 1.	20.000 20.000 20.000 293.9 293.9 293.9 400.0 1300.0 1200.0 2060.3 1880.3 1700.3	293.9 293.9 1100.0 1000.0 1520.3 1340.3 1 .4211-3 7.0632-3 7.8 28.979 28.979 2 0.3038 0.2983 0 1.2915 1,2985 1	0,000 20,000 20,000 293,9 293,9 293,9 900.0 800.0 700.0 160.3 980,3 800.3	20.000 20.000 293.9 293.9 600.0 500.0 620.3 440.3 11,772-2 1.4126-2 1 28.979 28.979 0.2706 0.2635 1.3394 1.3517 480.2 440.4	20.000 20.000 293.9 293.9 400.0 300.0 260.3 80.3 1,7658-2 2.6475-2 28.979 32.586 0.2571 0.3227 1.3637 1.2484 395.6 309.1
CO2 0.11801 0.1 H20(L) 0.00000 0.1 H20 0.11223 0.1 NO 0.00043 0.0 N2 0.73685 0.7 OH 0.00002 0.0	11802 0.11802 0.11802 0 00000 0.00000 0.00000 0 11224 0.11224 0.11224 0 00026 0.00014 0.00007 0 73694 0.73700 0.73703 0	0.11802	00890 0.00880 0.00880 11802 0.11802 0.11802 00000 0.00000 0.00000 11224 0.11224 0.11224 00000 0.00000 0.00000 73707 0.73707 0.73707 00000 0.00000 0.00000 00000 0.00000 0.00000 02388 0.02388 0.02388	0.11802 0.11802 0.00000 0.00000 0.11224 0.11224 0.00000 0.00000 0.73707 0.73707	0.00880 0.00880 0.11802 0.11802 0.00000 0.11070 0.11224 0.00154 0.00000 0.00000 0.73707 0.73707 0.00000 0.00000 0.02388 0.02388
P, PSIA 440.9 4 T, DEG K 2800.0 27 T, DEG F 4580.3 44 RHO, G/CC 3.7329-3 3.86 M, MOL HT 28.589 28 CP, CAL/IGI(K) 0.5665 0. GAMMA (S) 1.1769 1.	30,000 30,000 30,000 440,9 440,9 440,9 2700,0 2600,0 2500,0 4400,3 4220,3 4040,3	440.9 440.9 2400.0 2300.0 2 3860.3 3680.3 3 4.5994-3 4.8 28,905 28,935 2 0.4088 0.3854 0 1.2160 1.2261 1	4 PHI= 0.8792 0.000 30.000 30.000 440.9 440.9 440.9 200.0 2100.0 2000.0 500.3 3320.3 3140.3 116-3 5.0427-3 5.2961-3 5 8.954 28.965 28.972 3682 0.3560 0.3472 .2349 1.2422 1.2481 883.3 865.3 846.4	30.000 30.000 440.9 440.9 1900.0 1800.0 2960.3 2780.3 5.77.55-3 5.8856-3 28.975 28.977 0.3406 0.3354 1.2531 1.2575 826.6 805.9	30,000 30,000 440.9 440.9 1700.0 1600.0 2600.3 2420.3 5.2321-3 6.6217-3 28,978 28,979 0.3309 0.3266 1,2617 1.2658 784.5 762.3
CO 0.01732 0.0 CO2 0.09911 0.1 H 0.00076 0.0 HO2 0.00002 0.0 H2 0.00263 0.0 H20 0.10340 0.1 NO 0.01254 0.0 NO 0.01254 0.0 NO 0.00001 0.0	01215 0.00807 0.00505 0.00505 0.00505 0.00617 0.10247 0.00044 0.00025 0.00013 0.00501 0.0013 0.0013 0.0013 0.0013 0.0013 0.0014 0.00030 0.0013 0.00031 0.00031 0.00031 0.00031 0.00014 0.00031 0.00001 0.00011 0.00011 0.00011 0.00011 0.00011 0.00011 0.00011 0.00011 0.00011 0.00011 0.00013 0.00033 0.00655 0.00503 0.00373 0.00503	0.00298 0.00165 0. 0.11473 0.11618 0. 0.00006 0.00003 0. 0.00001 0.00001 0. 0.00049 0.00028 0. 0.11008 0.11081 0. 0.00623 0.00512 0. 0.00001 0.00001 0. 0.73206 0.73338 0. 0.0023 0.00013 0. 0.00270 0.0019 0.	00879 0.00880 0.00880 00086 0.00042 0.00019 11705 0.11754 0.11780 00001 0.00001 0.00000 00000 0.00000 0.00000 00016 0.00000 0.00000 11133 0.11167 0.11190 00416 0.00331 0.00257 00001 0.00001 0.00001 73434 0.73506 0.73559 00007 0.00004 0.00002 00130 0.00086 0.00054 02192 0.02222 0.02255	0.00000 0.00000 0.00002 0.00001 0.11204 0.11213 0.00195 0.00142 0.00001 0.00001 0.73601 0.00001 0.00001 0.00000 0.00032 0.00018	0.00880 0.00880 0.00001 0.00000 0.11800 0.11801 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.11219 0.11221 0.00100 0.000067 0.00001 0.000067 0.00000 0.00000 0.73654 0.73672 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.000005 0.02335 0.02352

ADD H201L1 ADD CISE P. PSIA T, DEG K

F/A= 0.06824 PERCENT FUEL= 6.3882 PHI= 1.0000 CASE= 0 0/F= 14.6540 40,000 40,000 40,000 40,000 40,000 40,000 40.000 40.000 40.000 40,000 40.000 40 000 40,000 587.8 587.8 587.8 587.8 587.8 587.8 587.8 587.8 587.8 587.8 587.8 587.8 587.8 1500.0 2240.3 1400.0 1300.0 1200.0 1100.0 1000.0 900.0 800.0 700.0 600.0 500.0 400.0 300.0 1700.3 1340.3 1160.3 440.3 800.3 80.3 T. DEG F 2060.3 1880.3 1520.3 980.3 620.3 260.3 9,4180-3 1,0091-2 1,0867-2 1,1773-2 1,2843-2 1,4127-2 1,5697-2 1,7659-2 2,0182-2 2,3546-2 2,8255-2 3,8069-2 5,3875-2 RHO, G/CC M, MOL WT 28.981 28.981 28.981 28,981 28.981 28.981 28,981 28,981 28.981 28,981 31,238 33,156 28,981 CP, CAL/IGITKI 0.3256 0,3213 0.3169 0.3122 0.3071 0.3015 0.2951 0,2880 0.2806 0.2731 0,2658 0.8510 0.3127 GAMMA ISI 1,2669 1.2714 1.2762 1,2815 1,2875 1.2944 1.3027 1,3124 1.3234 1.3353 1.3477 1,1981 1,2449 SON VEL, M/SEC 738.4 714.6 689.9 664.2 637.4 609.4 580.0 548.8 515.5 479.4 439.7 357.1 306.0 MOLE FRACTIONS AR 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00873 0.00000 0.00000 0.00000 0.00000 CO 0.00003 0.00001 0.00000 0.00000 0.00000 0.60000 0.00000 0.00000 0.00000 0.13313 0.13315 0.00001 0.00000 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 0.13316 002 0.13316 0.13316 0.13316 0.13316 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 H2 0.00000 0.00000 0.00000 0.00000 0.07225 H20(L) 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.12592 0.12666 0.00001 0.12667 0.12668 0.12668 0.12668 0.12668 0.05443 0,00076 0.12668 0.12668 0.12668 0.12668 0.12668 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 NO 0.00000 0.00000 0.00000 0.73141 0.73142 0.00001 0.00000 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.73143 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0,00000 CASE= 0 0/F= 14.6540 PERCENT FUEL= 6.3882 PHI= 1.0000 F/A= 0.06824 50,000 50,000 50.000 50.000 50.000 50,000 50,000 50,000 50,000 50,000 50.000 50.000 734.8 734.8 734.8 734.8 734.8 734.8 734.8 734.8 19J0.0 734.8 734.8 734.8 734.8 2100.0 2800.0 2700.0 2600.0 2500.0 2400.0 2300.0 2200.0 1800.0 1700.0 1600.0 4580.3 4400.3 4220,3 4040.3 3860.3 3680.3 3500.3 3320.3 3140.3 2960.3 2780.3 2600.3 2420.3 7.000.5 7.200.5 7.000.5 0.5282 0.3715 0.3351 0.4319 0.4077 0.3587 0.3488 0.3411 0.5661 0.4926 0.4603 0.3876 0.3301 1,2075 1.2165 1.2253 1,2336 1.2410 1.2475 1.2532 1.2581 1.2626 1.1771 1,1905 1,1987 913.9 980.5 963.4 946.8 930.3 897.3 880.3 862.6 844.2 824.8 804.5 783.4 0.00869 0.00870 0.00871 0.00872 0.00873 0.00873 0.00873 0.00873 0.00873 0.00859 0.00862 0.00865 0.00867 0.02430 0.01876 0.01406 0.01020 0.00715 0.00483 0.00313 0.00194 0.00114 0.00063 0.00033 0.00016 0.00007 0.10665 0.11273 0.11787 0.12207 0.12539 0.12791 0.12976 0.13105 0.13192 0.13247 0.13280 0.13299 0.13309 0.00044 0.00026 0.00014 0,00008 0,00004 0,00002 0,00001 0,00000 0,00000 0,00000 0.00000 0.00000 0.00072 0.00001 0.00001 0.00000 0.0000.0 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00389 0.00300 0.00227 0.00168 0.00008 0.00004 0.00002

N2 P, ATM P. PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL/IGITED GAMMA ISI SON VEL, M/SEC MOLE FRACTIONS AR CO C02 H H02 0.00121 0.00085 0.00058 0.00038 0.12409 0.12493 0.12554 0.12596 0.00024 0.00014 0.12625 0.12643 H2 0.12655 H20 0.11722 0.11958 0.12147 0.12296 0.12661 0.12665 0.00219 0.00149 0.00098 0.00000 0.00000 0.00000 0.72694 0.72840 0.72946 NO 0.00742 0.00571 0.00427 0.00311 0.00061 0.00037 0.00000 0.00021 0.00011 0.00005 0.00002 N02 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 N2 0.73122 0.71562 0.71939 0.72250 0.72500 0.73021 0.73071 0.73102 0.73133 0.73138 0.00000 0 . 0.00071 0.00042 0.00023 0.00013 0.00006 0.00003 0.00001 0.00001 0.00000 0.00000 0.00000 0.00000 0.00150 0.00096 0.00059 0.00034 0.00010 0.00005 0.00002 0.00622 0.00457 0.00326 0.00225 0.00001 0.00864 0.00678 0.00515 0.00379 0.00270 0.00185 0.00122 0.00076 0.00046 0.00026 0.00014 0.00007 0.00003

ADD CISI ADD H201L1 CASE= 0 0/F= 12.5000 F/A= 0.08000 PERCENT FUEL= 7.4074 PHI= 1.1723 P, ATM 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 0.5000 7.3 1500.0 7.3 7.3 7.3 7.3 7,3 P. PSIA 7.3 7.3 7.3 7.3 7,3 7.3 T. DEG K 1400.0 1300.0 1100.0 700.0 1200.0 1000.0 900.0 800.0 600.0 500.0 400.0 2240.3 T. DEG F 1880.3 2060.3 1700.3 1520.3 1340.3 980.3 620.3 440.3 1160.3 800.3 260.3 RHO, G/CC 1.1393-4 1.2207-4 1.3146-4 1.4241-4 1.5536-4 1.7089-4 1.8988-4 2.1369-4 2.4634-4 2.9202-4 3.5274-4 4.4148-4 6.4182-4 M, MOL NT 28.046 28.046 28.046 28.046 28.046 28.046 28.046 28.055 28.300 28.755 28,945 28.981 CP. CAL/IGITED 0.3338 0.3226 0.3313 0.3289 0.3266 0.3245 0.3205 0.3289 0.4557 0.3749 0.2956 0.2692 1.2695 GAMMA (S) 1,2720 1.2746 1.2771 1.2794 1,2815 1.2840 1,2809 1,2306 1.2610 1,3130 1.3428 SON VEL.M/SEC 700.9 645.9 392,5 726.6 674.0 616.4 585.3 551.1 503,1 467.7 434.3 MOLE FRACTIONS 0.00836 0.00836 AR 0.00836 0.00836 0.00836 0.00836 0.00836 0.00836 0.00843 0.00855 0.00852 0.00844 CISI 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.01259 0.02230 0.00000 0.00239 CH4 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0,00000 0.00016 0.00452 0.01139 0.00952 0.00515 0.04259 CO 0.04458 0.04013 0.03708 0.03329 0.02858 0.02286 0.01608 0.00644 0.00068 0.00002 0.00000 0.10480 0.10679 0.11229 0.11609 0.12079 002 0.10925 0.12651 0.13318 0.13977 0.13831 0.13010 H2 0.02015 0.02214 0.02460 0.02765 0.03144 0.03615 0.04185 0.04802 0.04077 0.01511 0.00266 H20:L1 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.11755 H20 0.12200 0.12001 0.11450 0.11071 0.10600 0.10029 0.09384 0.09359 0.10745 0.12313 NH3 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00003 0.00003 0.00002 0.70011 0.70012 0.70012 0.70012 0.70012 0.70012 0.70012 0.70034 0.70644 0.71608 0.71345

7.3

31,599

1.7738

1.1342

0.00836

0.00026

80,3

0,00000 0.12346 0.11734 0.00018 0.00000 0.00000 0.08014 0.13312 0.06156 0.00001 0.00000 0.70733 0.70049 CASE = 0 F/A= 0.08000 PERCENT FUEL= 7.4074 0/F= 12.5000 PHI= 1.1723 P, ATM 1.0000 1.0000 1,0000 1.0000 1.0000 1.0000 1,0000 1,0000 1,0000 1.0000 1.0000 1.0000 P. PSIA 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 14.7 2100.0 1800.0 1700.0 T. DEG K 2800.0 2700.0 2600.0 2500.0 2400.0 2300.0 2200.0 2000.0 1900.0 T, DEG F 4580.3 4400.3 4220.3 4040.3 3860.3 3680.3 3500.3 3320.3 3140.3 2960.3 2780.3 2600.3 RHO, G/CC 1.1762-4 1.2344-4 1.2939-4 1.3547-4 1.4174-4 1.4826-4 1.5519-4 1.6268-4 1.7086-4 1.7987-4 1.8987-4 2.0105-4 2.1361-4 M. MOL WT 27,025 27.348 27.604 27,792 27.913 27,981 28.016 28.032 28.040 28.045 28.043 28.045 0.6175 0.3390 CP, CAL/IGITEL 0.9831 0.8627 0.7396 0.5100 0.4331 0.3882 0.3648 0.3528 0.3462 0.3421 GAMMA (S) 1,1413 1.1461 1.1548 1.1692 1.1900 1.2135 1.2329 1.2457 1.2534 1.2582 1.2616 1.2644 1.2670 SON VEL.M/SEC 991.5 970.0 951.0 935.1 922.3 910.7 880.9 862.2 820,5 798.3 897.2 841.9 MOLE FRACTIONS AR 0.00805 0.00815 0.00823 0.00828 0.00832 0.00834 0.00835 0.00835 0.00836 0.00836 0.00836 0.00836 0.00836 CO 0.08308 0.07458 0.06677 0.06049 0.05618 0.05364 0.05220 0.05126 0.05046 0.04962 0.04868 0.04755 0.04621 ĊŌ2 0.06086 0.07108 0.08025 0.08753 0.09249 0.09539 0.09702 0.09804 0.09889 0.09974 0.10069 0.10182 0.10316 0.01161 0.00749 0.00473 0.00294 0.00181 0.00109 0.00064 0.00036 0,00019 0,00010 0,00005 0,00002 0,00001 н 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 H02 0.00001 0.00000 0.00000 0.00000 0.00000 0.00000 0.01758 0.01536 0.01307 0.01291 H2 0.02038 0.01316 0.01365 0.01431 0.01510 0.01605 0.01717 0.01852 H20 0.10239 0.11109 0.11789 0.12278 0.12586 0.12747 0.12807 0.12804 0.12763 0.12695 0,12607 0.12497 0.12363 0.00069 0.00030 0.00012 0.00004 0.00001 МО . 0.00848 0.00622 0.00422 0.00260 0.00142 0.00000 0.00000 0.00000 0.67958 N2 0.67039 0.68698 0,69247 0.69609 0.69816 0.69922 0.69972 0.69994 0.70005 0.70009 0.70011 0.70011

0.00010

0.00327 0.00178

0.00119 0.00042

0.00003

0.00089

0.00012

0.00001

0.00041

0.00000 0.00000

0.00018 0.00007

0.00003 0.00001 0.00000

0.00000

0.00002

0.00000

0.00000

0.00001

0.00000

0.00000

0

OH

0.00592

0.01679

0.01204

0.00331

0.01240 0.00859

0.00852 0.00529

0.00168

0.00076

0.00553

0.00277

0.00030

ADD CIST ADD H20(L) CASE= 0 0/F= 11.1111 F/A= 0.09000 PERCENT FUEL= 8.2569 PHI= 1.3189 762.1 SON VEL.M/SEC 736.8 710.5 588.5 536.6 499.5 469.5 683.0 654.1 623.5 434.4 391.8 292.0 MOLE FRACTIONS AR 0.00806 0.00806 0.00806 0.00806 0.00806 0.00807 0.00807 0.00817 0.00829 0.00831 0.00826 0.00817 0.00807 CISI 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.01314 0.02411 0.03436 0.04538 0.05773 0.00000 0.00000 0.00000 0.07611 0.07309 0.06942 0.08601 0.08903 0.09270 CH4 0.00000 0.00000 0.00001 0.00033 0.00664 0.01392 0.01511 0.01197 0.00655 0.00003 Ć0 0.06492 0.05937 0.05250 0.04360 0.02573 0.00000 0.00464 0.00038 0.00001 0.00000 0.09719 0,10274 0,10961 0.11830 0.13190 0.13493 0.12742 0.11966 002 0.11231 0.10436 H2 0.03946 0.04248 0.04615 0.05064 0.05618 0.06301 0.07069 0.06471 0.03208 0.00994 0.00170 0.00012 0.00000 H20(L) 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.13561 0.09126 0.08302 H20 0.11484 0.11182 0.108:5 0.10365 0.09811 0.07827 0.09858 0.11873 0.13232 0.14309 0.01864 NH3 0.00000 0.00000 0.00000 0.00000 0.00001 0.00001 0.00003 0.00006 0.00007 0.00005 0.00003 0.00001 0.00000 0.67552 0.67552 0.67552 0.67552 0.67552 0.67552 0.67554 0.67597 0.68451 0.69434 0.69595 0.69170 0.68437 0.67556 CASE= 0 0/F= 11.1111 F/A= 0.09000 PERCENT FUEL= 8,2569 PHI= 1,3189 P, ATM 2.0000 2.0000 2.0000 2,0000 2.0000 2.0000 2,0000 2,0000 2,0000 2.0000 2.0000 2,0000 29.4 2800.0 4580.3 2.3324-4 29.4 29.4 29.4 29.4 29.4 P. PSIA 29.4 29.4 29.4 29,4 29.4 T, DEG K 2500.0 1800.0 2700.0 2600.0 2400.0 2300.0 2200.0 2100.0 2000.0 1900.0 1700.0 1600.0 3320,3 T, DEG F 4400.3 4220.3 4040.3 3860.3 3680.3 3500.3 3140.3 2960.3 2780.3 2600.3 RHO, G/CC 2.3324-4 2.4363-4 2.5424-4 2.6521-4 2.7676-4 2.8908-4 3.0239-4 3.1688-4 3.3278-4 3.5033-4 3.6980-4 3.9156-4 4.1604-4 26.795 27,203 27.303 27.307 27,309 M. MOL HT 26,988 27,120 27,252 27.279 27,294 27.310 27,311 0.7711 0.6494 0.4691 0.3892 0.3715 0.3501 CP, CAL/IGITET 0.5456 0.4193 0.3609 0.3544 0.3471 0.3446 GAMMA ISI 1.1586 1.1712 1.1885 1.2079 1.2255 1.2392 1.2488 1,2553 1.2597 1.2630 1.2656 1.2678 1.2699 973.3 947.3 875.9 SON VEL, M/SEC 1003.3 987.0 960.7 932.0 914.8 896.0 854.7 832.8 810.0 MOLE FRACTIONS AR 0,00791 0,00797 0,00801 0.00803 0.00805 0.00806 0.00806 0.00806 0.00806 0.00806 0.00806 0.00806 0.00806 CO 0.10053 0.09619 0.09302 0.09089 0.08946 0.08838 0.08740 0.08640 0.08528 0.08399 0.08248 0.08071 0.07861 0.020.05851 0.06401 0.06796 0.07058 0.07230 0.07354 0.07461 0.07567 0.07681 0.07811 0.07963 0.08140 0.08350 0.00967 0.00655 0.00437 0.00286 0.00182 0.00112 0.00066 0.00037 0.00020 0.00010 0.00005 0.00002 0.00001 H 0.02810 0.02909 0.03023 0.03154 0.03307 0.03485 0.03695 H2 0.02825 0.02687 0.02623 0.02620 0.02660 0.02726 0.12587 0.12556 0.12488 0.12391 0.12268 H20 0.11275 0.11855 0.12239 0.12461 0.12565 0.12120 0.11944 0.11735 NO 0.00473 0.00304 0.00179 0.00097 0.00049 0.00023 0.00010 0.00004 0.00001 0.00000 0.00000 0.00000 0.00000

N2

0

OH

0.66039

0.00235

0.01111

0.66602

0.00116

0.66991

0.00051

0.00757 0.00483 0.00288

0.00380 0.00208 0.00098 0.00040

0.67236

0.00020

0.67381

0.00007

0.00162

0.67462

0.00002

0.00085

0.00014 0.00005

0.67506 0.67530

0.00001 0.00000

0.00000

0.00020

0.00001

0.00042

0.67542 0.67547

0.00000 0.00000

0.00000 0.00000

0.00008 0.00003 0.00001

0.67550 0.67551

0.00000

0.00000 0.00000 0.00000

0.00000 0.00000

0.67552

0.00000

ADD CISI ADD H201L)

CASE= 0 0/F= P, ATM 3.0000 P, PSIA 44.1 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 6.4897-4 M, MOL WT 26.626 CP, CAL/IGI/K) 0.3459 GAMMA (S) 1.2751 SON VEL,M/SEC 772.8	10,0000 F/A= 0,10000 3,0000 3,0000 3,0000 44.1 44.1 44.1 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 6,9533-4 7,4882-4 8,1123-4 26,626 26,626 26,627 0,3444 0,3432 0,3426 1,2767 1,2779 1,2786 747,1 720.2 692.2	PERCENT FUEL= 9.0909 3.0000 3.0000 3.000 44.1 44.1 44.1 1100.0 1000.0 900. 1520.3 1340.3 1160. 8.8500-4 9.7392-4 1.0906- 26.628 26.639 26.84 0.3434 0.3582 0.570 1.2782 1.2705 1.206 662.6 629.7 579.	1 44.1 44.1 800.0 700.0 3 980.3 800.3 3 1.2724-3 1.4914-3 1 6 27.843 28.556 0 .7061 0.4482 6 1.1782 1.2299	600.0 500.0 400.0 300 620.3 440.3 260.3 86 7590-3 2.1182-3 2.6494-3 4.2600 28.868 28.968 28.987 34.5 0.3371 0.2919 0.2755 0.5 1.2784 1.3126 1.3318 1.1	4.1 0.0 0.3 0-3 956 251
MOLE FRACTIONS AR C(S) 0.00079 CH4 0.00000 CO 0.10313 CO2 0.07085 H2 0.05982 H20(L) 0.00000 H20 0.10581 NH3 0.00000 N2 0.65260	0.00779 0.00779 0.00779 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.09959 0.09531 0.09008 0.07439 0.07868 0.08390 0.06336 0.06764 0.7285 0.00000 0.00000 0.00000 0.10226 0.09758 0.9276 0.00000 0.00001 0.00001 0.65260 0.65260 0.65260	0.00000 0.00000 0.0000 0.00010 0.00022 0.0040 0.08364 0.07540 0.0579 0.09033 0.09845 0.1114 0.07924 0.08670 0.0879 0.00000 0.00000 0.0000 0.08635 0.07851 0.0707 0.00002 0.00004 0.0000	0 01686 0.03329 9 0.01398 0.01833 0 0.02037 0.00314 3 0.12766 0.12563 1 0.05736 0.02577 0 0.00000 0.00000 0.08480 0.10914 8 0.00010 0.00010	0.00808 0.00802 0.00792 0.00 0.04332 0.05410 0.06650 0.08 0.01858 0.01453 0.00812 0.00 0.00225 0.00001 0.00000 0.00 0.11831 0.11041 0.10219 0.09 0.00771 0.00131 0.00009 0.00 0.00000 0.00000 0.00000 0.15 0.12682 0.14002 0.15196 0.00 0.00000 0.00000 0.0000 0.05 0.12682 0.14002 0.55 0.00007 0.00004 0.00001 0.00 0.67686 0.67157 0.66320 0.65	146 001 000 251 000 681 880 000
P, ATM 4.0000 P, PSIA 58.8 T, DEG k 2800.0 T, DEG F 4580.3	10,0000 F/A= 0,10000 4,0000 4,0000 4,0000 58.8 58.8 58.8 2700.0 2600.0 2500.0 4400.3 420.3 4040.3 47761-4 4,9722-4 5,1794-4 26,454 26,520 26,563 0,5136 0,4582 0,4206 1,2021 1,2177 1,2314 1010.0 996.3 981.6	58.8 58.8 58. 2400.0 2300.0 2200. 3860.3 3680.3 3500. 5.4006-4 5.6388-4 5.8972- 26.589 26.605 26.61	8 58.8 58.8 2000.0 2100.0 2000.0 3 3320.3 3140.3 4 6.1793-4 6.4890-4 6 5 26.620 26.623 3 0.3624 0.3577 9 1.2613 1.2647	1900.0 1800.0 1700.0 1600 2960.3 2780.3 2600.3 2420 .6309-4 7.2107-4 7.6349-4 8.112: 26.625 26.626 26.626 26.6 0.3543 0.3517 0.3496 0.3 1.2673 1.2696 1.2716 1.2	8.8 0.0 0.3 2-4 626 476
MOLE FRACTIONS AR CO 0.12322 CO2 0.04898 H 0.00833 H2 0.04200 H20 0.11449 N0 0.00226 N2 0.64478 O 0.00080 OH 0.00654 O2 0.00089	0.00774 0.00776 0.00777 0.12161 0.12040 0.11942 0.05125 0.05289 0.054:5 0.00579 0.00393 0.00260 0.04206 0.04250 0.04320 0.11748 0.11919 0.11996 0.00134 0.00075 0.00039 0.64770 0.64963 0.65084 0.00037 0.00015 0.0006 0.00424 0.00261 0.00153 0.00042 0.00018 0.00007	0.05523 0.05627 0.0573 0.00166 0.00102 0.0006 0.04408 0.04507 0.0461 0.12007 0.11969 0.1080 0.00019 0.00009 0.0000 0.55159 0.65204 0.6522 0.00002 0.00001 0.0000 0.000085 0.00045 0.0002	5 0.11539 0.11405 0 0.05855 0.05991 0 0.00034 0.00018 9 0.04743 0.04882 6 0.11794 0.11668 4 0.00002 0.00001 0 0.65244 0.65252 0 0.09000 0.00000 2 0.00010 0.00004	0.00779 0.00779 0.00779 0.00 0.11250 0.11070 0.10858 0.10 0.06147 0.06328 0.06540 0.06 0.05041 0.05223 0.05436 0.05 0.1516 0.11336 0.11126 0.10 0.050241 0.05223 0.05436 0.05 0.11516 0.11336 0.11126 0.10 0.00000 0.00000 0.00000 0.00 0.65256 0.65258 0.65259 0.65 0.00000 0.00000 0.00000 0.00 0.00000 0.00000 0.00000 0.00 0.00000 0.00000 0.00000 0.00 0.00000 0.00000 0.00000 0.00	609 789 0001 686 877 000 260 000

	CASE= 0 P, ATM P, PSIA T, DEG K T, DEG F RHO, G/CC M, MOL WT CP, CAL//G/IK/ GAMMA ISI SON VEL.M/SEC	0/F= 0.5000 7.3 1500.0 2240.3 1.1767-4 28.967 0.2996 1.2971 747.3	100.0000 0.5000 7.3 1400.0 2060.3 1.2607-4 28.967 0.2950 1.3030 723.6	F/A= 0. 0.5000 7.3 1300.0 1880.3 1.3577-4 28.967 0.2907 1.3089 698.9	01000 0.5000 7.3 1200.0 1700.3 1.4709-4 28.967 0.2864 1.3151 673.0	PERCENT F 0.5000 7.3 1100.0 1520.3 1.6046-4 28.967 0.2820 1.3215 645.9	UEL= 0. 0.5000 7.3 1000.0 1340.3 1.7651-4 28.967 0.2774 1.3285 617.5	0.5000 7.3 900.0 1160.3	HI= 0.146 0.5000 7.3 800.0 980.3 2.2063-4 28.967 0.2666 1.3466 556.1	0.5000 7.3 700.0 800.3	0.5000 7.3 600.0 620.3 2.9418-4 28.967 0.2546 1.3688 485.5	0.5000 7.3 500.0 440.3 3.5301-4 28.967 0.2492 1.3799 445.0	0.5000 7.3 400.0 260.3 4.4126-4 28.967 0.2448 1.3893 399.4	0.5000 7.3 300.0 80.3 5.8835-4 26.967 0.2422 1.3952 346.6
•	MOLE FRACTIONS AR CO2 H2O N0 N2 OH O2	0.00923 0.02088 0.01960 0.00120 0.77262 0.00004 0.17642	0.00923 0.02088 0.01962 0.00072 0.77287 0.00002 0.17667	0.00923 0.02088 0.01962 0.00039 0.77303 0.00001 0.17683	0.00923 0.02088 0.01952 0.00020 0.77313 0.00000 0.17693	0.00923 0.02088 0.01962 0.00009 0.77319 0.00000 0.17699	0.00923 0.02088 0.01962 0.60003 0.77321 0.00000 0.17702	0.00923 0.02098 0.01962 0.00001 0.77322 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02688 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703	0.00923 0.02088 0.01962 0.00000 0.77323 0.00000 0.17703
	CASE= 0 P, ATM P, PSIA T, DEG F T, DEG F RHO, G/CC M, MOL WIT CP, CAL//GITE/ GAMMA (S) SON VEL,M/SEC	0/F= 1.0000 14.7 2800.0 4580.3 1.2382-4 28.448 0.6154 1.1745 980.4	100.0000 1.0000 14.7 2700.0 4400.3 1.29!1-4 28.604 0.5503 1.1836 963.8	F/A= 0. 1.0000 14.7 2600.0 4220.3 1.3462-4 28.721 0.4936 1.1947 948.3	01000 1.0000 14.7 2500.0 4040.3 1.4042-4 28.806 0.4467 1.2072 933.3	PERCENT F 1.0000 14.7 2400.0 3860.3 1.4657-4 28.865 0.4094 1.2202 918.4	UEL= 0. 1.0000 14.7 2300.0 3680.3 1.5315-4 28.905 0.3808 1.2329 903.1	9901 P 1,0000 14.7 2200.0 3500.3 1,6026-4 28,930 0,3593 1,2446 887.1	HI= 0.146 1.0000 14.7 2100.0 3320.3 1.6798-4 28.946 0.3434 1.2550 870.1	1.0000 14.7 2000.0 3140.3 1.7644-4 28.956 0.3315 1.2641 852.0	1.0000 14.7 1900.0 2960.3 1.85761 0.3225 1.2720 833.0	1.0000 14.7 1800.0 2780.3 1.9610-4 28.964 0.3153 1.2790 812.9	1,0000 14.7 1700.0 2600.3 2.0764-4 28.966 0.3094 1,2854 792.0	1.0000 14.7 1600.0 2420.3 2.2063-4 28.966 0.3042 1.2914 770.1
	MOLE FRACTIONS AR CO CO2 HH02 H20 NG NG NG NG OH	0.00907 0.00574 0.01477 0.00213 0.00001 0.01210 0.03138 0.00002 0.74368 0.02082 0.01083 0.14877	0.00912 0.00408 0.01654 0.00128 0.00001 0.00051 0.01373 0.02779 0.00002 0.74963 0.01410 0.00899 0.15421	0.00915 0.00273 0.01797 0.00072 0.00001 0.01513 0.02423 0.00002 0.75454 0.00922 0.00720 0.15871	0.00918 0.00172 0.01905 0.00039 0.00001 0.01629 0.02030 0.00001 0.75853 0.00580 0.00557 0.16241	0.00920 0.00102 0.01979 0.00019 0.00001 0.01723 0.01756 0.00001 0.76173 0.00351 0.00416 0.16546	0.00921 0.00057 0.02027 0.00009 0.00001 0.00009 0.01795 0.00001 0.76429 0.00202 0.00202 0.00299 0.16795	0.00922 0.00030 0.02056 0.00004 0.00005 0.01849 0.01182 0.00001 0.76633 0.00111 0.00207 0.16999	0.00922 0.00014 0.02072 0.00002 0.00000 0.00003 0.01889 0.00940 0.00001 0.76797 0.00057 0.00137 0.17165	0.00923 0.00007 0.02081 0.00001 0.00000 0.00001 0.01916 0.00729 0.00001 0.76927 0.00028 0.00087 0.17299	0.00923 0.00003 0.02085 0.00000 0.00001 0.01935 0.00549 0.00001 0.77032 0.00012 0.00052	0.00923 0.00001 0.02087 0.00000 0.00000 0.01947 0.00401 0.77114 0.00005 0.00030 0.17491	0.00923 0.00000 0.02088 0.00000 0.00690 0.00000 0.01954 0.00281 0.00001 0.77178 0.00001 0.17556	0.00923 0.00000 0.02088 0.00000 0.00000 0.00000 0.01959 0.000189 0.00001 0.77227 0.00001 0.00001 0.00008 0.17606

CASE= 0 0/F P, ATM 1.500 P, PSIA 22. T, DEG K 1500. T, DEG F 2240. RHO, G/CC 3.5304 M, MOL WT 28.96 CP, CAL/IGHKH 0.304 GAMMA (S) 1.290 SON VEL,M/SEC 745.	0 22.0 22.0 22.0 1400.0 1300.0 1200. 3 2060.3 1880.3 1700. 4 3.7826-4 4.0736-4 4.4130- 9 28.969 28.969 28.97 5 0.3000 0.2955 0.291 9 1.2965 1.3023 1.308	0 22.0 22.0 2 0 1100.0 1000.0 90 3 1520.3 1340.3 114 4 4.8142-4 5.2956-4 5.884 0 28.970 28.970 28.970 0.2865 0.2818 0.2 3 1.3147 1.3218 1.3	22.0 22.0 22.0 00.0 800.0 700.0 00.3 980.3 800.3 10-4 6.6195-4 7.5652-4 8.8 1969 28.969 28.969 2764 0.2704 0.2642	1.5000 1.5000 1.5000 1.5000 22.0 22.0 22.0 22.0 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 8261-4 1.0591-3 1.3239-3 1.7942-3 28.970 28.970 28.970 29.445 0.2579 0.2522 0.2474 0.7451 1.3627 1.3737 1.3837 1.1878 484.3 444.0 398.6 317.2
MOLE FRACTIONS AR CO2 0.0410 H20(L1 0.0000 H20 0.0388 NO 0.0010 NO2 0.0000 N2 0.7651 OH 0.0000 O2 0.1446	6 0.04106 0.04106 0.04106 0.00000 0.00000 0.00000 5 0.03886 0.03886 0.0388 8 0.00065 0.00036 0.0001 1 0.00000 0.09000 0.0000 6 0.76539 0.76554 0.7656 4 0.00002 0.00001 0.0000	5 0.04106 0.04106 0.04 0 0.00000 0.00000 0.00 7 0.03887 0.03887 0.00 8 0.00008 0.00003 0.00 0 0.00000 0.00000 0.00 3 0.76568 0.76570 0.76 0 0.00000 0.00000 0.00	1106 0.04106 0.04106 0 1000 0.00000 0.00000 0 1887 0.03887 0.03887 0.03887 0 10001 0.00000 0.00000 0 10000 0.00000 0.00000 0 10000 0.00000 0.00000 0 10000 0.00000 0.00000 0	.0051/2 0.70914 0.00914 0.00914 .04104 1.34106 0.04106 0.04106 .000(
CASE= 0 0/F P, ATM 2.000 P, PSIA 29. T, DEG K 2800. T, DEG F 4580. RHO, G/CC 2.4790- M, MOL WT 28.47 CP, CAL/(GIK) 0.607 GAMMA (S) 1.173 SON VEL,M/SEC 979.	4 29.4 29.4 29.0 2700.0 2600.0 2500.0 3 4400.3 4220.3 4040.4 4 2.5841-4 2.6938-4 2.8094-9 9 28.626 28.736 28.81 9 0.5458 0.4915 0.496 9 1,1829 1.1937 1.205	4 29.4 29.4 29.4 20.0 2400.0 2300.0 2203 3860.3 3680.3 354 2.9321-4 3.0636-4 3.2056 28.872 28.910 28 4.2183 1.22183 1.2304 1.2	29.4 29.4 29.4 10.0 2100.0 2000.0 10.3 3320.3 3140.3 355-4 3.5290-4 3.5290-4 3.5290-4 3.5290-4 3.5290-4 3.5290-4 3.5290-4 3.5290-4 3.5250 0.3350 0.	2,0000 2,0000 2,0000 2,0000 29,4 29,4 29,4 29,4 1900.0 1800.0 1700.0 1600.0 2740.3 2780.3 2600.3 2420.3 7155-4 3,9223-4 4,1532-4 4,4129-4 28,963 28,966 28,968 28,969 0,3272 0,3202 0,3144 0,3092 1,2669 1,2735 1,2795 1,2853 831,3 811.2 790.1 768.3
MOLE FRACTIONS AR CO 0.0099 CO2 0.0310 H 0.0020 H02 0.0001 H2 0.0012 H20 0.0291 NC 0.0285 NO2 0.0000 N2 0.7384 O 0.0134 OH 0.0135 O2 0.1241	30 0.00653 0.00431 0.0026 40 0.03405 0.03642 0.0381 60 0.00120 0.00067 0.0003 20 0.00002 0.00001 0.0003 80 0.00021 0.00062 0.0004 40 0.03143 0.03331 0.0348 60 0.02519 0.02190 0.0187 20 0.00002 0.00002 0.0000 60 0.74402 0.74859 0.7522 0.000907 0.00591 0.0037 00 0.01091 0.00856 0.0065	9 0.00158 0.00088 0.00 5 0.00934 0.04010 0.00 5 0.00018 0.00008 0.00 1 0.00001 0.00001 0.00 0 0.00025 0.00015 0.00 2 0.03599 0.03688 0.00 6 0.01581 0.01310 0.0 2 0.00002 0.00002 0.00 8 0.75523 0.75757 0.77 2 0.00224 0.00129 0.00 1 0.00480 0.00343 0.00	0046 0.00022 0.00010 0 1056 0.04081 0.04095 0 10004 0.00001 0.00001 0 10001 0.00000 0.00000 0 10001 0.00000 0.00000 0 10008 0.00004 0.00002 0 1054 0.03801 0.03834 0 1064 0.00846 0.00656 0 10001 0.00001 0.00001 0 105344 0.76094 0.76213 0 1071 0.00001 0.00018 0 1071 0.00015 0.00018 0	.00914

P, PSIA 44.1 T, DEG K 1500.0 17 T, DEG F 2240.3 20 RHO, G/CC 7.0614-4 7.56 M, MOL HT 28.972 20 CP, CAL/(GI(K) 0.3093 0 GAMMA (S) 1.2850 1	.0000 3.0000 3.0000 44.1 44.1 44.1 400.0 1300.0 1200.0 060.3 1880.3 1700.3	PERCENT FUEL= 2. 3.0000 3.0000. 44.1 44.1 1100.0 1000.0 1520.3 1340.3 9.6293-4 1.0592-3 28.972 28.972 0.2910 0.2860 1.3084 1.3154 642.7 614.4	9126 PHI= 0.4396 3.0000 3.0000 3.0000 44.1 44.1 44.1 900.0 800.0 700.0 1160.3 980.3 800.3 1.1769-3 1.3240-3 1.5132-3 28.972 28.972 28.972 0.2804 0.2742 0.2677 1.3238 1.3336 1.3445 584.7 553.3 519.7	3.0000 3.0000 44.1 44.1 600.0 500.0 620.3 440.3 1.7654-3 2.1184-3 28.972 28.972 0.2612 0.2551 1.3561 1.3678 483.2 443.0	3.0000 3.0000 44.1 44.1 400.0 300.0 260.3 80.3 2.6480-3 3.7038-3 29.972 30.392 0.2499 0.4993 1.3784 1.2176 397.8 316.1
C02 0.06086 0.0 H20(L) 0.00000 0.0 H20 0.05772 0.0 N0 0.00095 0.0 N02 0.00001 0.0 N2 0.75786 0.0 OH 0.00004 0.0	00905 0.00905 0.00905 06086 0.06086 0.06086 00000 0.00000 0.00000 05773 0.05774 0.05774 00057 0.00031 0.00016 00001 0.09000 0.00000 75806 0.75819 0.75827 00002 0.0001 0.00000 11371 0.11364 0.11392	0.00905 0.00905 0.06086 0.06086 0.00000 0.00000 0.05774 0.05774 0.00007 0.00003 0.00000 0.00000 0.75831 0.75833 0.00000 0.00000 0.11397 0.11399	0.00905 0.00905 0.00905 0.06086 0.06086 0.06086 0.00000 0.00000 0.05774 0.05774 0.00001 0.00000 0.00000 0.07574 0.05774 0.05774 0.00001 0.00000 0.00000 0.075834 0.75835 0.75835 0.00000 0.00000 0.00000 0.11400 0.11400 0.11400	0.00905 0.00905 0.06086 0.06086 0.00000 0.05774 0.05774 0.00000 0.00000 0.05794 0.00000 0.00000 0.00000 0.75835 0.75835 0.00000 0.00000 0.11400 0.11400	0.00905 0.00905 0.06086 0.06086 0.00000 0.04673 0.05774 0.01101 0.00000 0.00000 0.75835 0.75835 0.00000 0.00000 0.11400 0.11400
P, PSIA 58.8 T, DEG K 2800.0 2 T, DEG F 4580.3 4 RHO, G/CC 4.9658-4 5.11 M, MOL WT 28.524 20 CP, CAL/IGIIK) 0.5926 0 GAMMA (SI 1.1749 1	1.0000 4.0000 4.0000 58.8 58.8 58.8 700.0 2600.0 2500.0 400.3 4220.3 4040.3	PERCENT FUEL= 2. 4.0000 4.0000 58.8 58.8 2400.0 2300.0 3860.3 3680.3 5.8665-4 6.1288-4 28.883 28.917 0.4086 0.3831 1.2180 1.2293 917.3 901.6	9126 PHI= 0.4396 4,0000 4,0000 58.8 58.8 2200.0 2100.0 2000.0 3500.3 3320.3 3140.3 6,4123-4 6,7208-4 7,0589-4 28.939 28.953 28.962 0.3641 0,3500 0.3394 1,2394 1,2483 1,2560 885.1 867.6 849.2	4,0000 4,0000 58.8 58.8 1900.0 1800.0 29.0.3 2780.3 7.4317-4 7.8453-4 28.966 28.969 0.3312 0.3246 1.2627 1,2688 829.8 809.6	4,0000 4,0000 58.8 58.8 1700.0 1600.0 2420.3 8.3072-4 8,8266-4 28.971 28.971 0.3190 0.3140 1,2744 1,2797 788.5 766.6
CO 0.01E3 0.002 0.04839 0.002 0.04839 0.00165 0.0003 0.000	00896 0.00899 0.00901 00797 0.00521 0.00323 05223 0.05520 0.05733 00096 0.00053 0.00028 00002 0.00002 0.0001 00115 0.00077 0.00049 05002 0.05204 0.05362 02231 0.01934 0.01654 00002 0.00002 0.00002 73896 0.74316 0.74641 00570 0.00371 0.00233 01091 0.00847 0.00640 10080 0.10262 0.10432	0.00903 0.00904 0.00189 0.00105 0.05878 0.05970 0.00014 0.00006 0.00001 0.00001 0.00030 0.00115 0.05484 0.05575 0.01393 0.01153 0.00002 0.00002 0.74905 0.75114 0.00140 0.00081 0.00469 0.00333 0.10592 0.10739	0,00904 0,00905 0,00905 0,00054 0,00026 0,00012 0,06025 0,06055 0,06072 0,00003 0,00001 0,00000 0,00001 0,00005 0,00002 0,05642 0,05689 0,05722 0,00937 0,00745 0,0578 0,05042 0,05689 0,05722 0,00937 0,00745 0,00001 0,75280 0,75412 0,75518 0,00044 0,00023 0,00011 0,00029 0,00151 0,00095 0,10870 0,10985 0,11083	0.00905 0.00905 0.00005 0.00002 0.06080 0.66083 0.00000 0.50000 0.00000 0.00000 0.05743 0.05757 0.00436 0.00318 0.00001 0.00001 0.75602 0.75668 0.00057 0.00032 0.11165 0.11231	0.00905 0.00905 0.00001 0.00000 0.06085 0.06085 0.00000 0.00000 0.00000 0.00000 0.05765 0.05770 0.05224 0.00150 0.05719 0.75758 0.00001 0.00001 0.75719 0.75758 0.00001 0.00000 0.00017 0.00008 0.11283 0.11322

ADD H20(L) . .

P, PSIA T, DEG K T, DEG F 22 RHO, G/CC M, MOL WT CP, CAL/IGHK) OGAMMA (S) 1	0/F= 25.0000 .0000 6.0000 88.2 88.2 500.0 1400.0 240.3 2060.3 124-3 1.5133-3 8.974 28.974 .3139 0.3094 .2796 1.2848 742.2 718.4	F/A= 0.04000 6.0000 6.0000 88.2 88.2 1300.0 1200.0 1880.3 1700.3 16297-3 1.7655-3 28.974 28.974 0.3049 0.3002 1.2902 1.2961 693.8 668.1	6.0000 6.0000 88.2 88.3 1100.0 1000.1 1520.3 1340.	6.0000 88.2 900.0 1160.3 2.3540-3 2.2540-3 2.0.2843 0.2843	H1= 0.5862 6.0000 6.0000 88.2 88.2 800.0 700.0 980.3 800.3 2.6483-3 3.0266-3 2.6483-3 3.0266-3 1.6487-3 0.266-3 1.6487-1 0.2779 0.2712 1.3276 1.3386 552.1 518.5	600.0 500 620.3 440	8.2 88.2 88.2 400,0 300,0 0.3 260.3 80.3 8-3 5.2965-3 7.6008-3 174 28.974 31.185 880 0.2523 0.3873 1.2409
CO2 0.0 H2O(L) 0.0 H2O 0.0 NO 0.0 NO2 0.0 N2 0.0 OH 0.0	00897 0.00897 08027 0.08027 00000 0.00000 07623 0.07625 00081 0.00048 00001 0.00001 75070 0.75087 00004 0.00001 08297 0.08314	0.00897 0.00P97 0.08027 0.08027 0.00000 0.00000 0.07625 0.00625 0.00027 0.00013 0.00000 0.00000 0.75099 C.75105 0.00000 0.00000 0.08325 0.08332	0.00897 0.0089 0.08027 0.0802 0.00000 0.0000 0.07625 0.0000 0.00006 0.0000 0.00000 0.0000 0.75109 0.7511 0.00000 0.0000 0.08336 0.0833	7 0.08027 0 0.00000 5 0.07625 2 0.00001 0 0.00000 1 0.75112 0 0.00000	0.00897 0.00697 0.08627 0.08027 0.00000 0.00000 0.07625 0.07625 0.00000 0.00000 0.00000 0.00000 0.75112 0.75112 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.08339 0.08339	0.00897 0.00 0.08027 0.08 0.00000 0.00 0.07625 0.07 0.00000 0.00 0.00000 0.00 0.75112 0.75 0.00000 0.00 0.08339 0.08	0.08027 0.08027 0.00000 0.07089 0.00000 0.00537 0.00 0.00000 0.00000 0.00000 0.00000 0.00000 0.75112 0.75112 0.00000 0.00000
P, PSIA T, DEG k 26 T, DEG F 46 RHO, G/CC 1.24 M, MOL HT 26 CP, CAL/IGIIK1 0 GAMMA IS1 1	0/F= 25.0000 0.000 10.000 147.0 147.0 800.0 2700.0 580.3 4400.3 449-3 1.2961-3 8.602 28.715 .5583 0.5081 .1795 1.1885 979,8 963.9	F/A= 0.04000 10.000 10.000 147.0 147.0 2600.0 2500.0 4220.3 4040.3 13499-3 1.4068-3 28.799 28.860 0.4286 1.1988 1.2097 948.6 933.4	PERCENT FUEL= 10.000 10.00 147.0 147. 2400.0 2300. 3860.3 3680. 1.4676-3 1.5329- 28.902 28.93 0.4004 0.378 1.2204 1.230 918.0 901.	0 10.000 0 147.0 0 2200.0 3 3500.3 3 1,6035-3 1 0 28.948 3 0.3627 4 1.2392	HI = 0.5862 10,000 10,000 147,0 147,0 2100.0 2000.0 3320.3 3140.3 1,6805-3 1,7650-3 28,959 28,966 0.3507 0.3415 1,2468 1.2535 867.0 848.3	1900.0 1800 2950.3 2780	7.0 147.0 147.0 1.0 1700.0 1600.0 0.3 2600.3 2420.3 5-3 2.0770-3 2.2069-3 172 28.973 28.974 184 0.3232 0.3184 1.2697 1.2747
CO	00885 0.00889 01121 0.00805 06743 0.07150 00003 0.00061 00003 0.00003 00171 0.00118 06702 0.06934 02180 0.01905 00002 0.00002 73056 0.73485 00462 0.07309 01199 0.03946 07309 0.07393	0.00891 0.00893 0.00522 0.00321 0.07457 0.07675 0.00034 0.00018 0.00002 0.00052 0.00119 0.07263 0.01647 0.01405 0.00020 0.00125 0.073833 0.74110 0.00200 0.00125 0.00728 0.00547 0.07487 0.07590	0.00894 0.0089 0.00187 0.0010 0.07820 0.0791 0.00009 0.0000 0.00001 0.0000 0.00030 0.0001 0.07371 0.0745 0.01183 0.0097 0.00002 0.0000 0.74331 0.7450 0.00076 0.0004 0.0039 0.0028	3 0.00053 2 0.07967 1 0.00002 1 0.00010 7 0.00010 9 0.007511 9 0.00796 2 0.00002 5 0.74644 4 0.00024 3 0.00194	0.00896 0.00896 0.00026 0.00012 0.07997 0.08013 0.00001 0.00000 0.00001 0.00000 0.00005 0.00002 0.07552 0.07580 0.00633 0.00491 0.00002 0.00002 0.74755 0.74843 0.00128 0.00086 0.00128 0.00080 0.00128 0.00080 0.00129 0.000073	0.00897 0.00 0.00005 0.00 0.08021 0.08 0.00000 0.00 0.00000 0.00 0.00001 0.00 0.07599 0.07 0.00371 0.00 0.74914 0.74 0.00003 0.00 0.000048 0.00 0.08140 0.08	002 0.00001 0.00000 025 0.08026 0.08027 000 0.00000 0.00000 000 0.00000 0.00000 010 0.07618 0.07622 011 0.0010 0.0001 010 0.00001 0.00001 010 0.75014 0.75046 010 0.00000 0.00000 027 0.00014 0.00000

P, ATM 15.000 15.000 11. P, PSIA 220.4 220.4 220.4 T, DEG K 1500.0 1400.0 II. T, DEG F 2240.3 2060.3 II. RHO, G/CC 3.5313-3 3.7836-3 4.0 M, MOL WT 28.977 28.977 26. P, CAL/IGI(K) 0.3183 0.3139 0.3139 0.3141 (S) 1.2746 1.2795 1	220,4 220,4 220,4 23 300,0 1200,0 1100,0 10 880,3 1700,3 1520,3 13 746-3 4,4142-3 4,8154-3 5,29 8,977 28,977 28,977 28, 3094 0,3047 0,2997 0,2	4,7619 PHI= 0,7327 000 15,000 15,000 15,000 20,4 220,4 220,4 220,4 20,0 900,0 800,0 700,0 10,3 1160,3 980,3 800,3 70-3 5,8855-3 6,6212-3 7,5671-3 977 28,977 28,977 28,977 2943 0,2882 0,2816 0,2746 3038 1,3122 1,3220 1,3329 11,6 582,1 550,9 517,4	15.000 15.000 15.000 15.000 220.4 220.4 220.4 220.4 600.0 500.0 400.0 300.0 620.3 440.3 260.3 80.3 8.283-3 1.0594-2 1.3242-2 1.9452-2 28.977 28.977 28.977 31.924 0.2675 0.2608 0.2547 0.3264 1.3447 1.3568 1.36684 1.2567 481.2 441.2 396.3 313.4
CO2 0.09932 0.09932 0.09932 0.0932 0.0932 0.0932 0.0932 0.000000	00888 0.00P88 0.00888 0.00 09932 0.09932 0.09 00000 0.00000 0.00000 0.00 09441 0.09442 0.09442 0.09 00021 0.00011 0.00005 0.00 09000 0.00000 0.00000 0.00 74392 0.74397 0.74400 0.7 00000 0.00000 0.00000 0.00 05324 0.05330 0.05333 0.05	3932 0.09932 0.09932 0.09932 0000 0.00000 0.00000 0.00000 3442 0.09442 0.09442 0.09442 0002 0.00001 0.00000 0.00000 0000 0.00000 0.00000 0.00000 4402 0.74402 0.74403 0.74403 0000 0.00000 0.00000 0.00000	0.00888 0.00888 0.00888 0.00888 0.09932 0.09932 0.09932 0.09932 0.00000 0.00000 0.00000 0.09232 0.09442 0.09442 0.09442 0.00210 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.74403 0.74403 0.74403 0.74403 0.00000 0.00000 0.00000 0.00000 0.05335 0.05335 0.05335 0.05335
P, ATM 20.000 20.000 21 P, PS1A 293.9 293.9 T, DEG K 2800.0 2700.0 21 T, DEG F 4580.3 4400.3 44 RHO, G/CC 2.4922-3 2.5940-3 2.7 M, MOL WT 28.631 28.736 21 CP, CAL/IGIIK 0.5480 0.5010 0 GAMMA (S) 1.1806 1.1895 1	293.9 293.9 293.9 29600.0 2500.0 2400.0 2360.0 2400.0 2360.0 2400.3 360.3 360.3 360.3 360.3 360.3 3.0672 28.911 28.4598 0.4258 0.3989 0.1995 1.2101 1.2204 1.2	4.7619 PHI= 0.7327 000 20,000 20,000 20,000 33.9 293.9 293.9 293.9 00.0 2200.0 2100.0 2000.0 3500.3 3500.3 3320.3 3140.3 34-3 3.2077-3 3.3616-3 3.5304-3 937 28.953 28.963 28.969 786 0.3636 0.3525 0.3441 2297 1.2379 1.2449 1.2508 01.5 884.3 866.3 847.3	20,000 20,000 20,000 20,000 293,9 293,9 293,9 293,9 1900.0 1800.0 1700.0 1600.0 29,0.3 2780.3 2600.3 2420.3 37,167-3 3,9234-3 4,1544-3 4,4141-3 28,973 28,975 28,976 28,977 0,3375 0,320 0,3272 0,3227 1,2561 1,2609 1,2655 1,2700 827,6 807.0 785,7 763,6
CO 0.01305 0.00890 0.00890 0.00890 0.00890 0.08509 0.08509 0.08509 0.08509 0.08509 0.08509 0.00046 0.00850 0.00046 0.00850 0.00002 0.00	00883 0.00885 0.00886 0.00 00576 0.00354 0.00206 0.00 09301 0.09542 0.09704 0.00 00002 0.00013 0.00006 0.00 00002 0.00055 0.00033 0.00 00891 0.09115 0.09215 0.00 0310 0.01115 0.00937 0.00 00002 0.00002 0.00002 0.00 073330 0.73574 0.73763 0.7 00113 0.00071 0.00043 0.00 00615 0.00460 0.00335 0.00 04774 0.04813 0.04868 0.00	0113 0.0059 0.0028 0.0091 805 0.0985 0.09899 0.0917 9003 0.00001 0.00001 0.00000 9001 0.00001 0.00000 0.00000 9019 0.00011 0.00005 0.00003 9025 0.09341 0.09378 0.09403 90775 0.00602 0.00002 0.00001 9002 0.00002 0.00002 0.00001 3911 0.74026 0.74116 0.74188 9025 0.00013 0.00007 0.00003 9025 0.00162 0.00107 0.00067 9025 0.00162 0.00107 0.00067	0.00888 0.00888 0.00888 0.00005 0.00002 0.00001 0.00000 0.09926 0.09930 0.09931 0.09932 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00001 0.00000 0.00000 0.00000 0.09419 0.09429 0.09435 0.09438 0.0024 0.00215 0.00151 0.00102 0.0001 0.00001 0.00001 0.00001 0.70245 0.74290 0.74324 0.74351 0.00002 0.00001 0.00001 0.00001 0.00001 0.00001 0.00001 0.000001 0.00001 0.00001 0.00001 0.000001 0.00010 0.00001 0.00001 0.000001

CASE= 0 0/F: P, ATM 30.00' P, PSIA 440.' T, DEG K 1500.' T, DEG F 2240.' RHO, G/LC 7.0632-' M, MOL WT 28.97' CP, CAL/IGI(K) 0.322' GAMMA (S) 1.270 SON VEL,M/SEC 739.	9 440.9 440.9 1400.0 1300.0 3 2060.3 1880.3 3 7.5677-3 8.1499-3 9 28.979 28.979 5 0.3182 0.3137 1 1.2747 1.2797	30.000 30.00 440.9 440. 1200.0 1100. 1700.3 1520.	0 30.000 9 440.9 0 1000.0 3 1340.3 3 1.0595-2 9 28.979 8 0.2983 5 1.2985	.6604 Pr 30.000 440.9 900.0 1160.3 1.1772-2 28.979 0.2920 1.3069 580.9	HI = 0.8792 30.000 440.9 800.0 980.3 1.3244-2 28.979 0.2851 1.3166 549.7	30.000 440.9 700.0 800.3 .5135-2 28.979 0.2779 1.3276 516.4	30.000 440.9 600.0 620.3 1.7658-2 28.979 0.2706 1.3394 480.2	30.000 440.9 500.0 440.3 2.1190-2 28.979 0.2635 1.3517 440.4	30.000 440.9 400.0 260.3 2.7502-2 30.090 1.0710 1.1981 363.9	30,000 440,9 300,0 80,3 3,9735-2 32,605 0,3119 1,2536 309,7
MOLE FRACTIONS AR C02 0.1180 H20(L1 0.0000 H20 0.1122 N0 0.0004 N2 0.7368 OH 0.0000 O2 0.0236	1 0.11802 0.11802 0 0.00000 0.00000 3 0.11224 0.11224 3 0.00026 0.00014 5 0.73694 0.73700 2 0.00001 0.00000	0.00P90 0.0088 0.11802 0.1180 0.00000 0.0000 0.11224 0.1122 0.00007 0.0000 0.73703 0.7370 0.00000 0.0000 0.02384 0.0238	2 0.11802 0 0.60000 4 0.11224 3 0.00001 5 0.73706 0 0.00000	0.00890 0.11802 0.00000 0.11224 0.00000 0.73707 0.00000 0.02388	0.11802 0.00000 0.11224 0.00000 0.73707 0.00000	0.00880 0.11802 0.00000 0.11224 0.00000 0.73707 0.00000 0.02388	0.00880 0.11802 0.00000 0.11224 0.00000 0.73707 0.00000 0.02388	0.00880 0.11802 0.00000 0.11224 0.00000 0.73707 0.00000 0.02388	0.00880 0.11802 0.03691 0.07533 0.00000 0.73707 0.00000 0.02388	0.00880 0.11802 0.11121 0.00103 0.00000 0.73707 0.00000 0.02388
P, ATM 40.000 P, PSIA 587.1 T, DEG k 2800.1 T, DEG F 4580.	8 597.8 587.8 0 2700.0 2600.0 3 4400.3 4220.3 3 5,1878-3 5,4024-3 0 28,735 28,815 0 0.5033 0.4637 5 1.1686 1.1981	40.000 40.00 587.8 587. 2500.0 2400. 4040.3 3860.	0 40.000 8 587.8 0 2300.0 3 3680.3 3 6.1336-3 3 28.940 9 0.3808 8 1.2282	40.000 587.8 2200.0 3500.3	HI = 0.8792 40.000 587.8 2100.0 3320.3 6.7240-3 28.967 0.3544 1.2431 865.6	40.000 587.8 2000.0 3140.3	40.000 587.8 1900.0 2960.3 7.4311-3 28.976 0.3402 1.2534 826.6	40.000 587.8 1800.0 2780.3 7.8476-3 28.978 0.3352 1.2577 805.9	40,000 587.8 1700.0 2600.3 8.3094-3 28.978 0.3308 1.2618 784.5	40.000 587.8 1600.0 2420.3 3.8289-3 28.979 0.3266 1.2659 762.3
MOLE FRACTIONS AR CO	2 0.01079 0.00711 3 0.10623 0.11023 2 0.00036 0.00020 2 0.00001 0.00001 3 0.00163 0.00109 4 0.10639 0.10807 7 0.01050 0.00887 2 0.00001 0.00001 1 0.72559 0.72844 2 0.00086 0.00054 9 0.000617 0.00467	0.00877 0.0087 0.00443 0.0026 0.11315 0.1151 0.00010 0.0000 0.00041 0.0000 0.00049 0.1102 0.00745 0.0062 0.00041 0.0000 0.73064 0.7322 0.00346 0.0025 0.00346 0.0025 0.00346 0.0025	0 0.00144 5 0.11642 5 0.00001 3 0.00025 7 0.11094 0 0.00511 1 0.00001 0 0.73351 0 0.00017	0.00879 0.00075 0.11718 0.00001 0.00014 0.11140 0.00415 0.00001 0.73441 0.00006 0.00121	0.00036 0.11760 0.00000 0.00000 0.00007 0.11172 0.00331 0.00001 0.73509 0.00003	0.00880 0.00016 0.11783 0.00000 0.00000 0.00003 0.11193 0.00257 0.00001 0.73561 0.00002 0.00050 0.00254	0.00880 0.00007 0.11793 0.00000 0.00000 0.00002 0.11206 0.00195 0.00001 0.73601 0.00001 0.00030 0.02285	0.00880 0.00002 0.11798 0.00000 0.00000 0.00001 0.11214 0.00142 0.00000 0.73631 0.00000 0.00017 0.02313	0.00880 0.00001 0.11800 0.00000 0.00000 0.11219 0.00100 0.00001 0.73654 0.00000 0.00009 0.00009	0.00880 0.00000 0.11801 0.00000 0.00000 0.00000 0.11222 0.00067 0.00001 0.73672 0.00000 0.00004 0.02352

ADD H20(L) ADD C(S)

CASE= 0 0/F= 1 P, ATM 50.000 P, PSIA 734.8 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 1.1773-2 1 M, MOL WT 28.981 CP, CAL/IGIIK) 0.3256 GAMMA (5) 1.2670 SON VEL,M/SEC 738.4	4.6540 F/A= 0.06824 50.000 50.000 50.000 734,8 734,8 734,8 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 1,2614-2 1,3584-2 1,4716-2 28,981 28,981 28,981 0.3213 0.3169 0.3122 1,2714 1,2762 1,2815 714,6 689,9 664,2	PERCENT FUEL= 6. 50.000 50.000 734.8 734.8 1100.0 1000.0 1520.3 1340.3 1.6054-2 1.7659-2 28.981 28.981 0.3071 0.3015 1.2875 1.2944 637.4 609.4	3882 PHI= 1,000 50,000 50,000 734.8 734.8 900.0 800.0 1160.3 980.3 1.9621-2 2,2074-2 28.981 28.981 0.2951 0,2880 1,3027 1,3124 580.0 548.8	50.000 50.000 734.8 734.8 700.0 600.0 800.3 620.3	50.000 50.000 734.8 734.8 500.0 400.0 440.3 260.3 3.5318-2 4.8179-2 28.981 31.627 0.2658 0.7306 1.3477 1.2017 439.7 355.5	734.8 300.0 80.3 6.7356-2 33.162 0.3095 1.2464
CO 0.00003 (CO 0.13113 H2 0.00001 H20 0.12667 NO 0.00001 N2 0.73141	0.00873 0.00873 0.00573 0.00001 0.00000 0.00000 0.13315 0.13316 0.13316 0.00000 0.00000 0.00000 0.12667 0.12668 C.12668 0.00000 0.00000 0.00000 0.73142 0.73143 0.73143 0.00000 0.00000 0.00000	0.00873 0.00873 0.00000 0.60000 0.13316 0.13316 0.00000 0.00000 0.00000 0.00000 0.12668 0.12668 0.00000 0.00000 0.73143 0.73143 0.00000 0.00000	0.00873 0.00873 0.00000 0.00000 0.13316 0.13316 0.00000 0.00000 0.12668 0.12668 0.00000 0.00000 0.73143 0.73143	0.00873 0.00873 0.00000 0.00000 0.13316 0.13316 0.00000 0.00000 0.12668 0.12668 0.00000 0.00000 0.73143 0.73143 0.00000 0.00000	0.00873 0.00873 0.00000 0.00000 0.13316 0.13316 0.00000 0.00000 0.00000 0.08367 0.12668 0.04301 0.00000 0.00000 0.73143 0.73143 0.00000 0.00000	0.00000 0.13316 0.00000 0.12607 0.00061 0.00000 0.73143
CASE= 0 0/F= 1 P, ATM 0,5000 P, PS1A 7,3 T, DEG K 2800,0 T, DEG F 4580,3 RHO, G/CC 5.8282-5 6 M, MOL HT 27.032 CP, CAL/IGH K) 1,1398 GAMMA (5) 1,1340 SON VEL,M/SEC 988.2	14.2857 F/A= 0.07000 0.5000 0.5000 7.3 7.3 2700.0 2600.0 4400.3 4220.3 440.5 250.0 27.453 27.812 28.109 1.1359 1.1396 1.1359 1.1396 4963.8 941.1 920.3	0.5000 0.5000 7.3 7.3 2400.0 2300.0 3860.3 3680.3	5421 PHI= 1.025 0.5000 0.5000 7.3 7.3 2200.0 2100.0 3500.3 3320.3 7.9383-5 8.3422-5 28.661 28.750 0.5250 0.4565 1.1800 1.1985 867.8 853.1	0.5000 0.5000 7.3 7.3 2000.0 1930.0 3140.3 2960.3	0.5000 0.5000 7.3 7.3 1800.0 1700.0 2780.3 2600.3 9.7605-5 1.0335-4 28.833 28.835 0.3414 0.3340 1.2544 1.2603 806.9 786.0	1600.0 2420.3 1.0982-4 28.836 0.3298 1.2643
CO 0.07243 CO2 0.05476 H 0.01481 HO2 0.00001 H2 0.01658 H20 0.08597 NO 0.01241 N2 0.67492 O 0.01223 OH 0.02211	0.00826 0.00837 0.00846 0.06198 0.05104 0.04042 0.06719 0.07982 0.09184 0.00924 0.00553 0.0036 0.00001 0.00000 0.00000 0.01338 0.1048 0.00801 0.09619 0.10472 0.11156 0.01006 0.00783 0.00582 0.68670 0.69685 0.70534 0.00754 0.00438 0.00238 0.01740 0.01306 0.00933 0.02205 0.01792 0.01367	0.00853 0.00858 0.03085 0.02285 0.10252 0.11138 0.00173 0.00091 0.00000 0.00040 0.11684 0.12076 0.00411 0.00272 0.71218 0.71746 0.00120 0.00055 0.00633 0.00405 0.00696 0.00626	0.00862 0.00865 0.01666 0.01232 0.11820 0.12296 0.00046 0.00022 0.00000 0.00000 0.00333 0.00256 0.12354 0.12537 0.00166 0.00090 0.72134 0.72396 0.00023 0.00008 0.00242 0.00138 0.00242 0.00136	0.00866 0.00867 0.00973 0.00853 0.12579 0.12710 0.00011 0.00005 0.00010 0.00000 0.00215 0.00203 0.12641 0.12684 0.00041 0.00015 0.72552 0.72623 0.00002 0.00000 0.00064 0.00026 0.00057 0.00013	0.00867	0.00756 0.12812 0.00000 0.00000 0.00250 0.12658 0.00000 0.72656 0.00000

ADD CIST ADD H20(L)

CASE= P, ATM P, PSIA T, DEG K T, DEG K T, DEG CC M, MOL WI CP, CAL/IGIIKI GAMMA (S) SON VEL,M/SEC	14.7 1500.0 1 2240.3 2 2.2786-4 2.4 28.046 2 0.3338 0 1.2695 1	1.0000 1.000 14.7 14 1400.0 1300 2060.3 1880	7 14.7 0 1200.0 3 1700.3 4 2.8482-4 6 28.046 9 0.3266 6 1.2771	PERCENT I 1.0000 14.7 1100.0 1520.3 3.1071-4 28.046 0.3245 1.2794 645.9	1.0000 14.7 1000.0 1340.3	1.0000 14.7 900.0 1160.3	PHI= 1.172 1.0000 14.7 800.0 980.3 4.2773-4 28.078 0.3564 1.2662 547.7	1.0000 14.7 700.0 800.3	1.0000 14.7 600.0 620.3 5.8531-4 28.817 0.3502 1.2738 469.6	1,0000 14.7 500.0 440.3 7.057-4 28.95-6 0.2893 1.3188 435.1	1.0000 14.7 400.0 260.3 8.8298-4 28.982 0.2686 1.3436 392.7	1.0000 14.7 300.0 80.3 1.3321-3 32.792 0.9785 1.1496 295.7
MOLE FRACTIONS AR C(S) CH4 CO2 H2 H2O(L) H2O NH3 N2	0.00000 0. 0.00000 0. 0.04458 0. 0.10480 0. 0.2015 0. 0.00000 0. 0.12200 0. 0.00000 0.	.00836 0.008 .00000 0.000 .00000 0.000 .04259 0.040 .02214 0.024 .00000 0.000 .12001 0.117 .00000 0.000 .70012 0.700	0.00000 0.00000 3.003708 5.011229 0.02765 0.00000 5.011450	0.11071	0.00836 0.00000 0.00000 0.02858 0.12080 0.03614 0.00000 0.10600 0.00000 0.70012	0.00836 0.00000 0.00001 0.02284 0.12652 0.04182 0.00000 0.10029 0.00001 0.70014	0.00837 0.00000 0.00057 0.01564 0.13334 0.04686 0.00000 0.09428 0.00003	0.00848 0.00000 0.00696 0.00497 0.13954 0.03277 0.00000 0.09738 0.00005 0.70996	0.00856 0.00317 0.01210 0.0048 0.13725 0.01101 0.00000 0.11032 0.00004	0.00852 0.01276 0.00963 0.00001 0.12985 0.00189 0.00000 0.12371 0.00002 0.71360	0.00844 0.02232 0.00516 0.00600 0.12344 0.00013 0.00000 0.13317 0.00001 0.70734	0.00836 0.03225 0.00006 0.00000 0.11709 0.00000 0.11240 0.02965 0.00000 0.70020
CASE= P. ATM P. PSIA T. DEG K T. DEG F RHO, G/CC M, MOL HT CP, CAL/(G)(K) GAMMA (S) SON VEL,M/SEC	22.0 2800.0 2 4580.3 4 1.7751-4 1.8 27.189 2 0.9038 0 1.1455 1	1,5000 1,500 22.0 22 2700.0 2600 4400.3 4220	0 22.0 0 2500.0 3 4040.3 4 2.0360-4 9 27.844 5 0.5684 7 1.1778	PERCENT 6 1.5000 22.0 2400.0 3860.3 2.1282-4 27.941 0.4768 1.1992 925.4	1.5000 22.0 2300.0 3680.3	.4074 F 1.5000 22.0 2200.0 3500.3 2.3284-4 28.022 0.3796 1.2373 898.7	PHI= 1.172 1.5000 22.0 2100.0 3320.3 2.4404-4 28.035 0.3611 1.2479 881.6	1,5000 22,0 2000.0 3140.3 2,5629-4 28,041 0,3512 1,2545 862,5	1.5000 22.0 1900.0 2960.3 2.6981-4 28.044 0.3455 1.2587 842.1	1,5000 22.0 1800.0 2780.3 2,8481-4 28,045 0,34;8 1,2618 820,6	1.5000 22.0 1700.0 2600.3 3.0157-4 28.045 0.3389 1.2645 798.3	1.5000 22.0 1600.0 2420.3 2.2042-4 28.046 0.3363 1.2670 775.2
MOLE FRACTIONS AR CO CO2 H02 H20 N0 N2 O O O O O O O O O O O O O O O O O O	0.07935 0.06546 0.00913 0.00001 0.01890 0.10691 0.00782 0.67483 0.00445 0.01487 0.01487	.00819 0.008 .07132 0.064 .07499 0.083 .00591 0.003 .00000 0.000 .01642 0.014 .11446 0.120 .00562 0.003 .68294 0.689 .00244 0.001 .01680 0.007	0.05888 0.05888 0.00236 0.00236 0.00206 0.00223 0.00223 0.00223 0.00253 0.00465	0.05535 0.09347 0.00146 0.00000 0.01283 0.12670 0.00119 0.69691 0.00020	0.00834 0.05329 0.09581 0.00089 0.00000 0.1282 0.12790 0.00057 0.69856 0.00004 0.00146	0.00835 0.05208 0.09717 0.00052 0.00000 0.01313 0.12827 0.00025 0.69939 0.00002 0.00073	0.00836 0.05122 0.09810 0.00030 0.00000 0.01365 0.12813 0.00010 0.69979 0.00001 0.00034 0.00002	0.00836 0.05045 0.09890 0.00016 0.00000 0.1431 0.12767 0.00003 0.69998 0.00000 0.00014 0.000014	0.00836 0.04962 0.09974 0.00008 0.00000 0.1510 0.12697 0.00001 0.70006 0.00000 0.00000	0.00836 0.04868 0.10070 0.00000 0.01605 0.12607 0.00000 0.70009 0.00000 0.00000 0.00000	0.00836 0.04755 0.10182 0.00002 0.00000 0.01717 0.12497 0.00000 0.70011 0.00000 0.00001 0.00000	0.00836 0.04621 0.10316 0.00001 0.00000 0.01852 0.12363 0.00000 0.70011 0.00000 0.00000

ADD C(S) ADD H20(L)

P. ATM 2.0000 P. PSIA 29.4 T. DEG K 1500.0 T. DEG F 2240.3	11.1111 F/A= 0.09000 2.0000 2.0000 2.0000 29.4 29.4 29.4 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 4.7547-4 5.1205-4 5.5472-4 27.311 27.311 27.311 0.3385 0.3369 0.3356 1.2738 1.2755 1.2768 736.8 710.5 683.0	PERCENT FUEL = 8.2569 2.0000 2.0000 2.0000 29.4 29.4 29.4 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 6.0515-4 6.6570-4 7.4049-6 27.311 27.313 27.34 0.3350 0.3364 0.375: 1.2776 1.2768 1.2576 654.1 623.4 586.3	1 29.4 29.4 800.0 700.0 8 980.3 800.3 1 8.4622-4 9.9265-4 1 8 27.775 28.509 7 1.1964 1.2256	2.0000 2.0000 29.4 29.4 600.0 500.0 620.3 440.3 1/721-3 1.4119-3 28.853 28.964 0.3395 0.2896 1.2785 1.3166 470.2 434.7	2.0000 2.0000 29.4 29.4 400.0 300.0 260.3 80.3 1.7661-3 2.7672-3 28.985 34.060 0.2719 0.6299 1.3378 1.1652 391.8 292.1
MOLE FRACTIONS AR 0.00806 C(S) 0.00000 CH4 0.00000 CO 0.07611 CO2 0.08601 H2 0.03946 H20 0.11484 NH3 0.00000 N2 0.67552	0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.07309 0.06942 0.06492 0.08903 0.09270 0.97179 0.04248 0.04615 0.05064 0.00000 0.00000 0.00000 0.11182 0.10815 0.10365 0.00000 0.00000 0.00000	0.09811 0.09126 0.08316 0.00001 0.00002 0.00004	0 0.00000 0.01387 0.00846 0.01465 0.02356 0.00401 0.13285 0.13434 0.06003 0.02850 0.00000 0.00000 0.07987 0.10092 0.00007 0.00008	0,00831 0.00826 0.02429 0.03440 0.01536 0.01200 0.00032 0.00001 0.12712 0.11959 0.00067 0.00147 0.00000 0.00000 0.11956 0.13248 0.00006 0.00003 0.69629 0.69174	0.00817 0.00807 0.04538 0.05775 0.00655 0.00002 0.00000 0.00000 0.11231 0.10435 0.00000 0.14038 0.14311 0.01390 0.00000 0.00000 0.68438 0.67554
CASE= 0 0/F= P, ATM 3.0000 P, PSIA 44,1 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 3.5119-4 M, MOL HT 26.936 CP, CAL/(GIIK) 0.6993 GAMMA ISI 1.1661 SON VEL,M/SEC 1004.7	27.054 27.160 27.225	PERCENT FUEL= 8.2569 3.0000 3.0000 44.1 44.1 2400.0 2300.0 2200.0 3860.3 3680.3 3500.1 4.1531-4 4.3372-4 4.5364-4 27.263 27.285 27.299 0.4061 0.3822 0.3677 1.2311 1.2427 1.2500 949.3 933.3 915.5	44.1 44.1 2100.0 2000.0 3 3320.3 3140.3 4 4.7535-4 4.9919-4 5 3 27.304 27.308 3 1.2564 1.2603	3.0000 3.0000 14.1 44.1 1900.0 1800.0 2960.3 2780.3 22549-4 5.5471-4 27.310 27.310 0.3497 0.3469 1.2653 854.8 832.8	3.0000 3.0000 44.1 44.1 1700.0 1600.0 2600.3 2420.3 5.8735-4 6.2406-4 27.311 27.311 0.3445 0.3424 1.2679 1.2699 810.0 786.5
MOLE FRACTIONS AR CO 0.09873 CO2 0.06092 H 0.00777 H2 0.02740 H20 0.11594 N0 0.00410 N2 0.66321 0 0.00166 OH 0.00947 02 0.0028	0.05500 0.09236 0.09059 0.06558 0.06885 0.07131 0.00530 0.00355 0.00233 6.02637 0.02599 0.02611 0.12066 0.12368 0.12535 0.00258 0.00149 0.00080 0.66788 0.67103 0.67299 0.00080 0.00035 0.00014 0.00635 0.00400 0.00237	0.09005 0.00002 0.00000 0.00133 0.00070 0.00039	0 0.08640 0.08528 0.07567 0.07681 0.00031 0.00016 0.02910 0.03024 7 0.12493 0.12393 0.00003 0.00001 5 0.67534 0.67544 0.00000 0.00000 0.00000 0.00000	0.00806 0.00806 0.08399 0.08248 0.07811 0.07962 0.00008 0.00004 0.03155 0.03307 0.12269 0.12121 0.00000 0.00000 0.67548 0.67551 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000	0.00806 0.00806 0.08071 0.07861 0.08140 0.08350 0.00002 0.00001 0.03485 0.03695 0.11944 0.11735 0.00000 0.00000 0.67552 0.67552 0.00000 0.00000 0.00000 0.00000

ADD CIS) ADD H201Li

CASE= 0 0/F= P, ATM 4.0000 P, PSIA 58.8 T, DEG K 1500.0 T, DEG F 2240.3 RHO, G/CC 8.6530-4 M, MOL WI 26.626 CP, CAL/IG/IK 0.3459 GAMMA IS 1.2751 SON VEL,M/SEC 772.8	10.0000 F/A= 0.10000 4.0000 4.0000 4.0000 58.8 58.8 58.8 1400.0 1300.0 1200.0 2060.3 1880.3 1700.3 9.2711-4 9.9843-4 1.0816-3 26.626 26.627 26.627 0.3444 0.3432 0.3427 1.2767 1.2779 1.2786 747.1 720.2 692.2	4,0000 4,0000 4,0000 58,8 58,8 58,8 1100.0 1000.0 900.0 1520.3 1340.3 1160.3 1,1800-3 1,2990-3 1,4594-3 26,628 26,648 26,945 0,3441 0,3687 0,6255 1,2779 1,2658 1,1977	PHI= 1.4654 4.0000 4.0000 4.0000 58.8 58.8 58.8 800.0 700.0 660.0 980.3 800.3 620.1 1.7040-3 1.9922-3 2.3466-0 27.965 28.607 28.860 0.6620 0.4305 0.300 1.1842 1.2356 1.282 530.7 501.4 470.6	8 58.8 58.8 58.8 58.8 50.0 0 500.0 400.0 300.0 0 3 440.3 260.3 80.3 3 2.8245-3 3.5326-3 5.6966-3 1 28.971 28.987 35.058 0.2904 0.2753 0.4730 1 1,3139 1,3320 1,1778
MOLE FRACTIONS AR 0.00779 C151 0.00000 CH4 0.00000 C0 0.10313 C02 0.07085 H2 0.05582 H201L1 0.00000 H20 0.10581 NH3 0.00000 N2 0.65260	0,00000 0,00000 0,00000 0,00000 0,00000 0,00000 0,09959 0,09531 0,09008 0,06336 0,06764 0,07285 0,00000 0,00000 0,00000 0,10226 0,09758 0,09276 0,00000 0,00001 0,00001	0.00000 0.00000 0.00000 0.00003 0.00038 0.00594 0.08362 0.07514 0.05715 0.09935 0.09860 0.11298 0.07921 0.08634 0.08385 0.00000 0.00000 0.00000 0.08635 0.07858 0.07174 0.00002 0.00005 0.00010	0.05172 0.02273 0.00673 0.00000 0.00000 0.00000 0.08840 0.11099 0.12744 0.00012 0.00011 0.00000	3 0.05413 0.06650 0.08147 0 0.01456 0.00812 0.00000 0 0.01456 0.00802 0.00000 0 0.00001 0.00000 0.00000 0 0.11036 0.10219 0.09251 0 0.00114 0.00008 0.00000 0 0.00000 0.00000 0.15904 4 0.14014 0.15197 0.00558 0 0.00004 0.00001 0.00000
CASE= 0 0/F= P, ATM 6.0000 P, PS1A 88.2 T, DEG K 2800.0 T, DEG F 4580.3 RHO, G/CC 6.8962-4 M, MOL HT 26.408 CP, CAL/(GI(K) 0.5450 GAMMA (S) 1.1955 SON VEL,M/SEC 1026.6	26,488 26,541 26,575 0,4829 0,4388 0,4088 1,2104 1,2245 1,2365	6,0000 6,0000 6,0000 88,2 88.2 88.2 2400.0 2300.0 2200.0 3860.3 3680.3 3500.3 8,1030-4 8,4594-4 8,8465-4 26,596 26,609 26,617 0,3898 0,3757 0,3670 1,2459 1,2530 1,2582	PHI= 1.4654 6.0000 6.0000 6.0000 88.2 88.2 38.2 2100.0 2000.0 1900.0 3320.3 3140.3 2960. 9.2693-4 9.7337-4 1.0247- 26.621 26.624 26.620 0.3611 0.3570 0.3541 1.2621 1.2651 1.2671 909.8 888.9 867.	2 88.2 88.2 88.2 88.2 88.2 88.2 88.2 88
MOLE FRACTIONS AR CO 0,12277 CO2 0,04779 H 0,00679 H2 0,04183 H20 0,11632 N0 0,00188 N2 0,64630 O 0,00055 OH 0,000544 O2 0,00054	0.12129 0.12032 0.11940 0.05169 0.05311 0.05425 0.00473 0.00321 2.00212 0.04254 0.11968 0.12036 0.00111 0.00062 0.00032 0.64865 0.65026 0.65118 0.00025 0.00010 0.00004 0.00350 0.00214 0.00125	0.11852 0.11759 0.11656 0.05527 0.05628 0.05736 0.00136 0.00083 0.00049 0.04413 0.04511 0.04621 0.12029 0.11981 0.11902 0.00016 0.00007 0.00003 0.65178 0.65214 0.65235 0.00001 0.00000 0.00000 0.000069 0.00037 0.00018	0.11540 0.11406 0.1125 0.05855 0.05991 0.0000 0.00028 0.00015 0.0000 0.04744 0.04883 0.0504 0.11797 0.11669 0.11511 0.00001 0.00000 0.00001 0.65247 0.55254 0.6525 0.00000 0.00000 0.00000 0.00000	1 0.11070 0.10858 0.10609 7 0.06328 0.06540 0.06789 7 0.00003 0.00001 0.00001 8 0.05224 0.05436 0.05685 5 0.11337 0.11126 0.10877 0 0.00000 0.00000 0.00000 7 0.65259 0.65259 0.65260 0 0.00000 0.00000 0.00000 1 0.00000 0.00000 0.00000